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## ORIGINAL ARTICLES.

# INTRAVENOUS PYELOGRAPHY IN URINARY TUBERCULOSIS.

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Although intravenous or excretion pyelography has, during the last twelve months, attracted the closest attention among urologists throughout the world, it is premature, at present, to declare as established all the advantages it promises to offer. As must be the case with the majority of urological surgeons experimenting upon its variety of uses, I cannot claim either to have had a wide enough experience of its application in connection with urinary tuberculosis to have standardized its value in diagnosis, or to have reason for believing that, by its antiseptic action, it will either exercise a therapeutic effect, or will act as a chemical irritant and thus possibly predispose to a lowered renal resistance.

As long ago as 1923, Rountree published the first positive results in excretion pyelography by means of sodium iodine administered intravenously. Roseno, however, was the first to reach some clinical success by means of a urea-iodine combination, called *Pyelognost*. This substance possessed disadvantages in that it was slow in elimination, and its injection was not devoid of toxic sequelæ. The next substance to be made known was Uro-selectan, and the merits of the newcomer have earned the widespread reputation which intravenous pyelography has acquired. Dr. Binz, assisted by Dr. Rath, in the investigation of the therapeutic properties of substances possessing a high iodine content, worked on the pyridine nucleus and transformed it—among other compounds—into a sodium salt of 5-iodine-2-pyridine, which was found efficacious in the treatment of streptococcal mastitis in cows. Some seventy-three similar compounds were synthetized, all the endeavours being in two directions—to increase the iodine content and the solu-

bility of the salt. The nearest approach to their ideal contained 42 per cent. iodine and was 35 per cent. soluble. It was produced in 1927, and was subsequently named by Von Lichtenberg *Uro-selectan*. Professor Lichtwitz observed that, owing to its high iodine content and that it was excreted almost entirely by the kidneys, it rendered the urinary tract radiologically visible. In March, 1929, Von Lichtenberg, Professor of Urology at Berlin, was consulted, and he delegated Dr. Swick to carry out clinical investigations, the results of which were to establish the non-toxicity of this substance, to confirm its renal excretion and to put a definite value upon its use as an aid to urological investigations.

For a normal adult, 40 grams are dissolved in 100 c.c. of distilled water and injected slowly intravenously. With healthy kidneys radiological shadows are to be obtained within five minutes of injection, the optimum shadows, however, not usually appearing until forty-five minutes after injection, when the pelvis and calyces are well defined; the renal outline is then more definite than usual because the parenchyma is, in a measure, rendered more opaque: the ureter appears as a broken column best visible in its highest and lowest fourths, the intermediate portion being invisible through the physiological collapse of this tube. The bladder shadow is invariably shown up as an opaque mass, concealing the lower three inches of the ureters if distended. Healthy kidneys have usually got rid of the greater portion of the injection by the end of two hours and by then the shadows have disappeared. If the excretory function is defective by virtue of impairment of the renal activity or by gross obstruction at a lower level, elimination is protracted. I have urograms of a case of bilateral hydronephrosis where shadows are easily visible at twenty-two hours after injection.

Examination of the urine after injection shows a considerable elevation of the specific gravity, which persists longer than the Uro-selectan excretion. During excretion the urine yields a white precipitate on the addition of an acid; in this way evidence of some value may be obtained as to the efficiency of the kidneys in excretory function. It will reinforce other tests, but of itself is insufficient, and is less reliable than, for instance, the urea excretion test of McLean.

The latest substance to have been introduced for intravenous pyelography is sodium-mono-iodo-methane sulphonate, known commercially as *Abrodil*: it is a white crystalline powder, containing 52 per cent. of iodine, readily soluble in distilled water, stable, well standing heating to 100° C. for fifteen hours, and may be kept in solution without decomposing. A 5 per cent. solution is isotonic with blood, and animal experiments have proved its low toxicity. Through its higher iodine content, a 20-gramme dose in the adult is sufficient to render the urine satisfactorily radio-opaque. In conjunction with Dr. Graham Hodgson

I have carried out a number of investigations with this substance. The shadows thrown have been denser and better defined than with Uro-selectan. They tend to appear somewhat earlier and to disappear somewhat more quickly than with the older substance. No toxic symptoms have up to the present given cause for anxiety.

In urological practice intravenous pyelography is of value, and possesses advantages over catheterization pyelography in the following types of cases:

(1) Nervous, intolerant patients, especially children. (2) Where there are contra-indications to the passage of a cystoscope—*e.g.*, urethral stricture, enlarged prostate, severe urethritis or cystitis. (3) With the open bladder. (4) Where the ureter is obstructed by stricture, impacted stone, tuberculous ureteritis. (5) Inability to find the ureters—*e.g.*, in tuberculous cystitis. (6) For contrast urograms in cases of tumours, tubercle, hydronephrosis, since both sides are shown simultaneously.

As has been already indicated, lack of material up to the present calls for reticence in discussing the value of intravenous pyelography in urinary tuberculosis. In the diagnosis of this disease, the large majority of cases would not appear to demand its use; already established methods, based upon cystoscopic appearances, the presence of tubercle bacilli in the bladder urine and in the urine from one or other kidney, the relative dye and urea excretions of the two kidneys, etc., being sufficient. There are, however, certain points in renal tuberculosis which I have observed in a series of urograms taken at intervals from five minutes to two and a half hours after injection:

(*a*) A normal pyelogram has never appeared on the diseased side, whereas the healthy side has, anyhow in some if not all of the exposures, presented normal characteristics. The pyelogram of the tuberculous kidney may present an overlarge pelvis, whilst the calyces may be, in places, normal, in other places dilated, with a well-defined hydrocalyx, in other places ragged and patchy. As is only to be expected, the intensity of the urographic shadow is less dense than in the normal kidney, it tends to appear after longer intervals, and to persist for a greater length of time.

(*b*) The ureter tends to be patent, and uniformly so, in its whole length, not presenting the broken column with the absent middle two-fourths seen in the normal state. A permanent ureter shadow appears to be the rule; this is, no doubt, due to infiltration of the coats, especially the muscular coat, with the products of inflammation eliminating the normal peristaltic wave of contraction. As is well known, the ureter, as disease advances, becomes a rigid tube, patent or occluded, but patent in the cases we have up to now investigated urographically.

(*c*) "Bladder splinting," which has been previously described and is said to be characteristic of tubercle, has not been evident. (This is the phenomenon in a cystogram if the normal curved outline of the bladder is transformed into a straight line in the region of the ureteric orifice of the diseased side.)

The most valuable application is likely to be in those cases where cystoscopy is difficult and ureter catheterization impossible owing to an advanced degree of cystitis resulting in extreme intolerance and hæmorrhage from congestion and ulceration. The problem in these cases is whether the disease is unilateral or bilateral, the solution having the greatest importance in view of its guide for treatment. If the disease is unilateral, nephrectomy is, one need hardly say, the critical point at issue, its performance in the correctly diagnosed cases being a life-saving measure. Until the introduction of intravenous pyelography, the only means of acquiring the knowledge of the integrity of one or other kidney in these cases was by extra-peritoneal ureterotomy where the ureters are exposed at the brim of the pelvis and tapped, an obviously undesirable measure. Whether the absence of deformity of the urogram will prove to be consistent enough to permit of the exclusion of tuberculous disease remains to be seen: if such be the case, we shall have acquired one more means of investigation of great value added to an already well-stocked armamentarium.

## A PSYCHOLOGICAL VIEW OF THE TUBERCULOSIS PROBLEM.

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Tuberculosis is one of the most prevalent diseases of civilization. We have all, probably, been infected at some time or other. Since there are no well-marked early symptoms and since there is seldom any pain, the disease is often far advanced before the one who is suffering from tuberculosis knows that he has been attacked. This latter fact, the comparative painlessness, together with the often lengthy course before the end, and its incapacitating effects, combine to make tuberculosis an interesting disease from the psychological side.

I propose to deal with three of the many questions which may be asked: (1) Does tuberculosis produce any marked mental change in the patient? (2) Does the mental attitude of the patient have any

effect on the course of the disease? (3) If so, what can be done to obtain the maximum alleviation?

**Mental Consequences of Tuberculous Disease.**

One of the effects sometimes ascribed to tuberculosis is the production of the genius. Havelock Ellis,[1] after pointing out the many tuberculous individuals included in the ranks of our British men of genius—such men as Keats and Sterne in literature, and Black and Priestley in science—says: "It is evident that the disease by no means stands in the way of the highest intellectual attainments, even if it is not indeed actually favourable to mental activity." Munro[2] devotes three chapters to the tuberculous genius, and states that he thinks "it may be assumed that the toxins of tuberculosis do in fact produce a mild form of intoxication or stimulation of the cerebral functions"; that there is a "good deal to be said for" the view that "the disease itself played some part in the efflorescence of their intellectual powers, and that the toxin of tuberculosis actually stimulated and quickened their creative capacity." On the other hand, Munro considers that there is a phthisical insanity; while Clouston[3] points to the high tuberculosis death-rate in asylums, and suggests that this is because the mental symptoms are the first to manifest themselves. Dementia præcox and tuberculosis are often said to be closely connected. Groom[4] describes twenty-nine cases of tuberculosis with nervous symptoms. He finds no relationship between the severity of the physical and the mental symptoms, but is of opinion that tuberculosis frequently does produce neurasthenic syndromes; while Simpson[5] considers that mental conflict is an etiological factor in tuberculosis paving the way for the entrance of the bacillus; that the sickness is, in fact, a defence mechanism which enables the patient to escape from the exacting requirements of society. Still another investigator[6] found that every one of a group of fifty women patients suffered from inertia, fatigability, oscillating mood, perseveration, anger, irritability, mild to pronounced reactions of either masochism or sadism, suggestibility, restlessness, apprehensiveness, hypersensitivity, regressive trends, loss of interest, abnormal respiratory behaviour, explosive effects, tendency to exaggerating, and selfishness. Then there is the case of the doctor[7] suffering from tuberculosis who compelled his wife to drink a glass of champagne into which he had expectorated that she might not survive him long; while Letulle[8] says that jealousy very often leads a young consumptive wife to kill herself, after murdering her husband so that no other woman may have him.

What terrible people the tuberculous are said to be! They contract the disease to escape the demands of society; they are murderers and suicides, geniuses and dements; they have all the minor qualities

which make an individual unbearable; and yet, as Dr. Stott a short while ago said to me at Papworth, "How is it that some of them are so charming? Some of them are almost angels"—or words to that effect.

Does not this wide range of behaviour supply the answer to the question whether tuberculosis produces any definite mental symptoms? Is it not that the tuberculous patients are the same as anybody else? If all of us were taken out and scrutinized closely, would we not be found to exhibit similar variations in behaviour? Perhaps some few of us would be found to be potential angels . . . and more of us perchance would be, potentially, something else. I think the sufferers from tuberculosis are like us in their changes of mood, in their likes and dislikes, in their flights of imagination and in their foolishness; and I believe that the reasons why abnormal behaviour is sometimes exhibited by them are the same as the reasons for abnormal behaviour which are to be found among us. I do not consider it likely that the abnormalities are due specifically to the tubercle bacillus. It seems to be more probable that they are caused by imperfections in development, physical or mental, or are due to the difficulties which life involves—life with its thwarted ambitions, with the fetters forged by society, and with the conflicts engendered by the inhibitions imposed by the individual's moral code.

We have to remember that the tuberculous patient is a sick person: that the poison is in his system sapping his vitality and making it more difficult for him to carry on, as the normal person does; that the illness is such that he will probably never be able to do what the ordinary individual can. Besides these physical disabilities the tuberculous subject has difficulties of a mental nature, which are greater than ours. What would we feel like if told tomorrow that we had to leave our work and go: that our services were no longer required? If we were dismissed from our posts through no fault of our own? And for tuberculous individuals it is much more serious than that. If we were dismissed, we could still hope to obtain employment elsewhere; but they, in the majority of instances, may never again return even to the same kind of work. Their occupation is gone. Who will employ a tuberculous baker, grocer, or nursemaid? While, if employed again under the same conditions as those under which they formerly broke down, they will surely break down anew. It is no wonder that, as has been said, "Melancholy is the badge of all the tribe of consumptives"—it should be added, I think, "*after they know* they are consumptives." They are not melancholy before they know they have contracted the disease. Melancholy would be our badge, too, if we had no hope. It is a frequent response to a situation with which we cannot cope. But it was not the response of Black or of Priestley. Scientists can carry

on, even if they have contracted tuberculosis, without much need to reorganize their lives; the disease interferes but little with their life's work; and so they, and others like them who can still work, may escape the common depression. But, feeling that their days are numbered, they may, and often do, work with a feverish energy, even as we work when much has to be done and we have all too short a time in which to do it.

To the majority of tuberculous persons the disease means the breakdown of their lives. The whole of that they were striving for has gone, often just when the prize seemed to be within their grasp. Such individuals, as you and I are prone to do when our greatest ambitions are thwarted, often tend to think of what might have been. They may then begin to obtain pleasure and satisfaction from their day-dreams. If this continues long, the day-dreams giving rise to no activity and being indulged in for their own sake, there may be a tendency to withdraw more and more from contact with reality, to live in a land of dreams. One such patient I have in mind. She spends hour after hour, day after day, knitting, with a vacant, apathetic look on her face. She scarcely speaks. She lives in a life apart, far away from her surroundings. It is probable, in my opinion, that this patient would have lived her dream life whatever her state of health. There is much evidence for the tendency in her early history. The abnormal condition is not a result of her tuberculosis, but the disease has exaggerated its effect: the enforced rest and quiet have permitted her to escape the more easily from contact with the world. In other individuals the dream life may be lived without loss of contact with reality. Especially may this happen where the individual has an aptitude for self-expression. Then works of literature, prose or poetry, musical composition or performance, painting or sketching, and such like may result. The individual finds a new life opening out before him. The list of the names of composers, artists and literary men, from Purcell (some say) to D. H. Lawrence and Tchechov, who have suffered from tuberculosis is long, yet it is a matter of some surprise to me that it is not much longer still. There is no need to my mind to assume, as some writers do, that one of the effects of tuberculosis is to quicken the intellectual faculties. To be laid low with tuberculosis must, even to the most robust of minds, give rise to day-dreams of what might have been. These day-dreams are the very essence of romantic art, and need but to be proclaimed in the appropriate medium to be recognized as such by the world at large.

There is one other mental state met with in tuberculous subjects which is so striking in its manifestation that the uninitiated tend to imagine it is common to them all: the state of hopefulness, when the most grandiose schemes for the future are planned, even at a time when the patient is no more than skin and bone and whilst his life stream is

visibly ebbing rapidly away: frequently the patient maintains that he is getting better and will be up and about "the day after tomorrow or next week at the latest." This piteous condition, which is by no means so common as is generally supposed, is I believe a striking example of dissociation, the etiology of which I have outlined elsewhere.[9]

So we see that the answer to the question whether tuberculosis produces any marked mental changes is answered in the affirmative. Yet the changes are not peculiar to those suffering from tuberculosis; they are such as are to be found among all sections of society.

**Effect of Mental Attitude in the Tuberculous.**

The answer to the second question, whether the mental attitude has any effect on the course of the disease, may be given very shortly and dogmatically. The mental attitude, perhaps working through the autonomic system, has an enormous effect on physical well-being in this as in other diseases. If the patient feels that life is still worth living, the chances of an arrest of the disease are almost infinitely greater than they are for another patient, in a similar clinical condition, if the latter feels that life is no longer worth while, or if he is continually worrying.

**Alleviation by Mental Means of Tuberculous Patients.**

We may now come to a consideration of the third question: What can be done to obtain the maximum alleviation of the disease?

(*a*) *During Treatment.*—The answer to this question is implicit in what has already been said. Those do the best whose lives are interfered with least. If a patient feels that he can still live and enjoy his life, even though it be a life not quite so full nor along the lines which he had previously planned, he may do well. So it comes about that one of the most important matters in treatment is the re-orientating of the patients' lives, where it is not possible for the former life to be continued. This is the reason why Papworth is so successful; why the expectation of life there is at least three times that usually given in sanatorium statistics.[10] But for those individuals whose old ways of living are gone, and whose lives are in one narrow groove which if they leave they die, there is not much hope. They require enormous care and help, and give great anxiety to their attendants. Sometimes success crowns the efforts made to change the patient's outlook on life; sometimes not. But it is always worth while to endeavour to give a patient a new outlook when it is necessary.

(*b*) *After Arrest of the Disease.*—Closely entwined with this is the question, What course should be followed by the individual in whom the progress of the disease has been arrested? Naturally the patient goes to a sanatorium for as short a time as possible. It is expensive.

He wishes to return to his old surroundings at the earliest possible moment. If he does this, what will be the consequences?

If a patient has ample means he may as well be at home as anywhere else. He can pay for the best attention. It is different, however, with an individual of limited means, or with one who is dependent on what he earns for his livelihood; and these two classes embrace the large majority of those who suffer from tuberculosis. We must remember two things: (1) That the individual is not cured when he leaves the sanatorium. There is no cure for tuberculosis at present. The progress of the disease has been arrested. That is all. At any time it may break out anew. As Wingfield[11] puts it, "No patient can be said to be cured till he is safely dead of some other disease." And (2) That the individual is going back to the environment in which he contracted the disease; the environment in which he broke down.

A few days ago I was in one of the poorer parts of Cambridge endeavouring to find a certain person whose exact address I did not know. In the way one does in such circumstances I went to a house to make enquiries. A man came to the door, smoking the fag-end of a cigarette, obviously depressed and down at heel, and with a cough. I asked him my way, and then I enquired about himself. He had recently returned, he said, from a sanatorium. He wanted to get to work; but could not, for his old job had gone. Also he was not fit enough to do it had it been still vacant. What did he do? He sat at home and read the newspaper sometimes. He tried to rest and to follow out the sanatorium treatment, but it was difficult. . . . While we were talking neighbours, with that kindly sympathy one finds so often among the working classes, enquired how he was getting on. The answer was obvious. He was going downhill rapidly. He had come home to die. The disease had been arrested, so it was said. In a different environment he might have been able to carry on for years; at home there was nothing to live for.

As I have already stated, the discharged sanatorium patient is not cured; generally he is still a very below-par man. When he goes home he has, as a rule, two aims: (*a*) To carry out to the best of his ability the treatment he has previously received; and (*b*) To obtain some employment which will not involve too great a strain on his depleted physical powers. If he succeeds in both these aims well and good; but success is impossible. I repeat that again: success in his quest is, with practically no exception, impossible. In the first place, the light employment with adequate remuneration, or even without it, is not to be found. And, secondly, proper continuance of the treatment is equally impossible.

I will not consider the economical fact of unemployment, though we must not overlook the psychological consequences. But home care is

another matter. I do not think it is often realized how difficult it is for a sick person to be looked after at home with any degree of success by members of his own family through a long illness. An invalid, even the best of invalids, involves extra work. This work usually falls on the women, who already have, in all probability, more than they can cope with satisfactorily. In addition, the invalid's requirements necessitate additional expenses which have often to be met, especially if the invalid is a breadwinner, out of a more straitened income. So anxiety and worry, the causes of so many mental and physical ills, arise. The invalid, if of the self-sacrificing type, is worried because he perceives what his illness entails. He hides his symptoms as far as possible. He denies himself the things that are necessary. He tries to be as little trouble as he can, to help in the house, probably doing much he is unfit to do; and soon he is reproaching himself for being the cause of much trouble and worry to others. The patient inevitably reaches the conclusion that it were better to be dead. Life has nothing for him. He is simply dragging his family down with him. When this conclusion has been reached the end is generally not far distant. He has another breakdown and, in spite of all the care bestowed on him, he dies; but probably not before he has infected others, who, as Dr. Varrier-Jones [12] puts it, "go through the same dismal process."

On the other hand, an invalid may not be of the self-sacrificing type. He may be self-centred. He takes his temperature a dozen times a day, insists on having this food or that, demanding rest, quiet, food, attention, which it is impossible to provide. With that supreme egoism to be found so often among chronic invalids, tuberculous and otherwise, everything and everybody has to be sacrificed to him. He is a vampire, draining the life blood from all around him. Regardless of the suffering entailed on others, *he* must not suffer. It is a terrible picture, one all too common to necessitate enlargement on by me here. One such invalid can do an enormous amount of harm, laying up a store of mental and physical ills for all with whom he comes into contact. Unfortunately, such invalids may last a long time. With the tuberculous patient, however, the continued worry and the frequent outbursts of anger lead to an early breakdown; but in the meantime he has probably succeeded in spreading the disease among the members of his household, who, worn out by his demands, are not able to resist the attack. If the family is not willing to be sacrificed, the plight of the patient is no better. He may get his way for a while by developing hysterical symptoms; but these are usually not necessary for long, for the disease quickly asserts itself again, and a real breakdown supervenes.

The cases I have outlined are perhaps extreme, but all cases tend to

approximate sooner or later to one of these types. The worry and difficulties entailed by the return of the tuberculous patient to his home environment are bound to produce a breakdown in the end. Whether his family is very solicitous or the reverse the final state, where the patient is dependent on the ministrations of his family, is bad The only real solution is for those in whom the advance of the disease has been arrested not to return to their former environment. In a proper environment such individuals can be self-supporting and can lead healthy lives in their own family circles. Life then is still worth living.

Why, it may be asked, will not the same dreadful results follow if the patients live with their families wherever they may live? In what way does the "proper environment" differ from their home environment? The answers are obvious. The proper environment will provide suitable work under adequate medical supervision. In this environment, the difficulties and worries which, combined with improper care, are the chief causes of relapses, are effectively solved. The patient is a self-respecting member of a community. An oversolicitous or a careless family is easily detected and set to right, and the hypochondriacal patient is not permitted to turn cannibal.

**Summary and Conclusions.**

Briefly to summarize what I have stated above, the chief points are:

1. The mental abnormalities which are found among the tuberculous are not due to any specific effect of the bacillus. They are due to the worries and difficulties which the disease brings into the patients' lives.

2. The mental attitude of the patient has a great effect on the progress of the disease.

3. One important factor in treatment is the development of a healthy mental attitude.

4 Successful after-sanatorium care entails the maintenance of morale and the avoidance of worries and anxieties. Except for the comparatively affluent, this can practically never be attained if the patient returns to his former environment.

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# THE DOMICILIARY TREATMENT OF TUBERCULOSIS.

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Schemes for the treatment of tuberculosis devised by local authorities in England are based in the main on the recommendations contained in the 1912 Report of the Departmental Committee on Tuberculosis, of which Mr. Waldorf Astor, M.P. (now Lord Astor), was the Chairman. Among other aspects of the problem of tuberculosis, the report gave guidance to local authorities in making or in aiding provision for the treatment of tuberculous patients in sanatoria or other institutions or otherwise. During the eighteen years which have elapsed since that report was issued, arrangements have been made throughout England for the public medical treatment of patients suffering from tuberculosis, although the completeness of these arrangements varies considerably between one district and another. In the main these treatment arrangements include the provision of (*a*) treatment in a sanatorium, (*b*) treatment at a tuberculosis dispensary, and (*c*) treatment of patients in their homes. There is little difference except in magnitude between the arrangements of one local authority and those of another in respect of the provision of treatment in a sanatorium and treatment at a tuberculosis dispensary, but there is a difference in the arrangements made by one local authority compared with another in respect of domiciliary treatment.

A summary of the chief features of the Liverpool scheme may be of interest and service at the present time. In Liverpool it was decided at the outset[1] to make provision not only for sanatorium treatment on an extensive scale and dispensary such as came within the scope of three tuberculosis dispensaries, but also for a scheme of domiciliary treatment which was to include the treatment at home of persons who were not insured under the National Health Insurance Act as well as persons who were insured. The majority of local authorities have confined domiciliary treatment to those patients only who possessed panel doctors by reason of insurance under the National Health Insurance Act, and have not included under their domiciliary treatment arrangements patients who are not insured. The intervention of the European War prevented completion of the Liverpool arrangements for domiciliary

[1] The Report as to the Complete Scheme for the Prevention and Treatment of Tuberculosis in Liverpool was presented to and passed by the Liverpool City Council in January, 1914.

treatment in respect of *all* non-insured persons suffering from tuberculosis who required this form of treatment, so that from 1914 to 1921 the dependants of insured persons were the only members of the non-insured class of patient who were eligible for home treatment at the public expense. Since 1921, however, all non-insured patients in Liverpool suffering from tuberculosis have been eligible for home treatment at the expense of the City Council. It is proposed in the paragraphs which follow to describe briefly the nature of this domiciliary treatment scheme and give some details regarding cost, etc.

In devising a domiciliary treatment scheme there appear to be two alternative plans—namely (1) to carry out home treatment by the aid of a whole-time medical staff appointed for the purpose, or (2) to adopt a plan in which use is made of the services of general medical practitioners. If the latter plan be chosen, payment for services rendered may be either on a capitation basis, as it is in the case of panel practitioners carrying out treatment under the National Health Insurance Act, or on an attendance basis at a fee to be decided upon. It was decided in Liverpool to make use of the services of general medical practitioners, and pay for medical services on an attendance basis. All the Liverpool doctors agreed to participate in this treatment scheme. The fee agreed upon at first was 2s. 6d. for each attendance paid to the patient, the same fee being payable whether the patient visited the doctor at his surgery or the doctor visited the patient at home, either by day or night. During the war the fee was advanced by 50 per cent. to 3s. 9d., but in October, 1925, it was reduced to 3s., at which level it has remained since.

The following are the principal rules and conditions which govern this domiciliary service, namely:

1. No non-insured person suffering from tuberculosis can be treated by a medical practitioner at the expense of the Liverpool City Council unless the diagnosis of tuberculosis has been confirmed by a tuberculosis officer and the latter has authorized the practitioner to treat the patient at the public expense.

2. After taking into consideration the wishes of the patient and his doctor, and having regard to the medical requirements of the case, it is the tuberculosis officer who decides whether the treatment is to be carried out at home or whether sanatorium treatment or dispensary treatment is a more suitable alternative.

3. The tuberculosis officer has the right to examine at any time any patient under domiciliary treatment, and decide whether that treatment shall continue at the public expense or be terminated.

4. At the end of every quarter, or at any other time when required, the medical practitioner is required to render a report. For this purpose use is made of the Ministry of Health form G.P. 36, with

which all tuberculosis officers are familiar as the form on which panel practitioners are required to render a report in respect of any insured person under domiciliary treatment for tuberculosis. However, in order to facilitate the rendering and checking of accounts, there is added to form G.P. 36 a terminal paragraph in the form of a table in which the doctor can record the dates of the attendances paid to the patient. The form of this table is as follows:

NON-INSURED PERSONS ONLY.

The dates on which the patient was attended should be given.

| MONTH | DATES |
|---|---|
| | |
| | |
| | |

This report must be sent to the Chief Tuberculosis Officer, Public Health Department, 55, Dale Street, Liverpool, on .....

5. Doctors who are prepared to afford domiciliary treatment to non-insured persons suffering from tuberculosis are supplied with prescription forms on which prescriptions may be issued to patients for whom domiciliary treatment has been authorized. These prescription forms are very similar to those issued by insurance committees to panel doctors, but are distinguishable at a glance through the use of a different coloured paper. Patients may take these prescriptions to any chemist[1] who is willing to dispense them on the terms described in the following paragraph.

6. At the end of each month chemists deal with prescriptions which they have dispensed to non-insured persons suffering from tuberculosis in the same manner as they deal with prescriptions which they have dispensed to insured persons in receipt of medical benefit under the National Health Insurance Act—namely, send them to the South-West Lancashire and Cheshire Pricing Committee for pricing. The amount of the chemist's account is determined by the price of drugs on the current price list issued by the Ministry of Health. The Pricing Committee in due course submits each chemist's account to the Liverpool Corporation for payment, subject to a check by the Corporation to

[1] All the Liverpool chemists have agreed to dispense these prescriptions under the conditions described in paragraph 6.

ensure that the patients to whom the prescription account relates are those for whom treatment for tuberculosis has been authorized.

7. The drugs which a doctor is allowed to prescribe are those which are permitted for the use of persons insured under the National Health Insurance Act and in receipt of medical benefit.

8. Patients have choice of doctor and are not influenced in that choice by the tuberculosis officer, but, if he wishes, the doctor chosen may refuse to accept a patient.

The Liverpool scheme for the treatment at home of non insured persons suffering from tuberculosis, therefore, provides machinery for the choice of patients who shall have that form of treatment and the giving of authority to treat at the public expense, arrangements with medical practitioners to treat at an agreed fee, and arrangements with chemists to dispense prescriptions which reach them on an appropriate and distinguishable form.

What is the magnitude of the task under a scheme of this description in a city of the size and circumstances of Liverpool? The figures given on p. 74 are averages for the years 1926 to 1929 inclusive.

It is noteworthy that a city with a population approaching 900,000 inhabitants, in which tuberculosis prevails to a degree which yielded a death-rate in 1929 of 1·46 per 1,000, finds that it is not necessary to make provision for the treatment at home of non-insured persons suffering from tuberculosis to a number greater than 1,000. However, this number would be influenced by the greatness or smallness of the number of patients under treatment at a sanatorium or under treatment at a tuberculosis dispensary, tending to rise as the treatment in sanatoria or at dispensaries is curtailed, and *vice versa*. At the end of 1929 the actual state of affairs in Liverpool was that there were 6,973 patients on the dispensary register, of whom 918 were under treatment in various sanatoria, 146 were under treatment at a tuberculosis dispensary, 1,206 were insured persons under domiciliary treatment or the supervision of their panel doctors, 3,799 were under the supervision of the tuberculosis officers as patients with quiescent or arrested disease not needing active treatment, and 904 were non-insured patients under domiciliary treatment under the scheme which is the subject of these paragraphs. It is likely, therefore, that under similar circumstances and with similar provision of sanatorium treatment it can be expected that 13 per cent. of the patients whose names are on the dispensary register will need home treatment at the public expense. This figure would be smaller in proportion to an increase in the number of patients under dispensary treatment, a number which is unusually small in Liverpool and is kept so deliberately.

What difficulties are met with in a scheme of this description which involves the help of so many private practitioners? There

TABLE SHOWING WORKING OF THE LIVERPOOL SCHEME FOR DOMICILIARY TREATMENT OF NON-INSURED PERSONS SUFFERING FROM TUBERCULOSIS, 1926-1929.

| | *Average Population.* | *Number of Non-insured Patients under Domiciliary Treatment.* | *Number of Attendances paid by Doctors Every Three Months.* | *Interval between Each Attendance in Days.* | *Cost in Medical Fees per Annum.* | *Number of Prescriptions issued Each Month.* | *Number of Prescriptions per Patient per Month.* | *Annual Expenditure on Drugs.* | *Cost per Prescription Exclusive of Pricing Charges.* | *Comparative Cost per Prescription issued to all Liverpool Patients in Receipt of Medical Benefit under the National Health Insurance Act.* |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Days. | £ | | | £ | Pence. | Pence. |
| Average figures from 1926 to 1929 | 861,165 | 911 | 9,825 | 8·44 | 5,895 | 3,735 | 4·1 | 2,099 | 11·1 | 8·5 |
| Highest figure reached | — | 1,057 | 11,320 | 9·4 | — | — | 4·73 | — | 12·85 | 8·93 |
| Lowest figure reached | — | 843 | 8,658 | 7·9 | — | — | 3·6 | — | 9·9 | 8·22 |

are difficulties which arise when a doctor thinks that he should attend a patient more frequently than the tuberculosis officer believes to be warranted by the condition of the patient. There are difficulties arising from the attitude of a few patients who go to see their doctors more often than is necessary because it does not cost them anything to do so. There are difficulties associated with excessive prescribing, a problem which National Health Insurance Committees and their officers have also to face in respect of insured persons in receipt of medical benefit. In Liverpool the difficulties due to excessive visiting by a doctor or unreasonable demands for visitation by a patient have not proved to be insuperable, and, without exception, it has been possible to enlist without impairment of efficiency the sympathies of doctors and patients in the need for economy. On the other hand, excessive prescribing or the prescribing of preparations which are unnecessarily expensive is a problem which will only be solved when medical practitioners and their patients possess a more accurate knowledge of the limits in the value of "a bottle of medicine."

Particularly in respect of the treatment of tuberculosis, it is in the use of cod-liver oil and preparations containing cod-liver oil that greater discrimination is needed; and it ought to be possible to reduce the cost per prescription issued to non-insured persons suffering from tuberculosis to one comparable with the cost per prescription issued to insured persons in receipt of medical benefit (see table above) by taking greater care in the choice of the cod-liver oil preparation administered and by paying more attention to the quantity in which it is consumed, because pure cod-liver oil by itself is not an expensive commodity. The following brief notes on cod-liver oil and the prescribing of it may be useful.

The main purpose of the use of cod-liver oil is to afford the patient an adequate supply of vitamins A and D. Vitamin A is found in mammalian liver, egg-yolk, milk, butter, suet, green vegetables, and margarine which had been brought up to butter standard. Vitamin D is found in egg-yolk, milk, butter, cheese, beef and mutton fat, and margarine which has been brought up to butter standard. If a sufficiency of vitamins A and D is obtained by the consumption of the requisite amount of these articles of diet, there is no need to administer cod-liver oil and no material benefit is likely to be derived from consuming it. Assuming a deficiency in vitamins A and D due to defects in a diet which cannot be remedied, what quantity of a good cod-liver oil is needed to remove the vitamin deficiency? Two drachms of cod-liver oil daily is ample for this purpose, a quantity which can be reduced when the patient's diet is only partly defective. The common practice of giving more than 2 drachms of cod-liver oil daily is both wasteful and disagreeable to the patient. The cost of giving a patient

2 drachms of cod-liver oil daily for a fortnight is 2½d. at current prices (July, 1930). Patients who cannot take without nausea pure cod-liver oil, even in such a small quantity as 2 drachms daily, can be given Emulsio Olei Morrhuæ (B.P.C.) or Extractum Malti cum Oleo Morrhuæ (B.P.C.). As the former contains 50 per cent. of cod-liver oil, the equivalent dose is 4 drachms daily, and it is wasteful to exceed this amount. The B.P.C. malt extract with cod-liver oil contains 15 per cent. of pure cod-liver oil, and the equivalent dose of this preparation is approximately 14 drachms daily. On the basis of equivalent dosage the cost of cod-liver oil emulsion for one patient for a fortnight is 8¾d., and the cost of the malt extract is 1s. 2d., whereas pure cod-liver oil is only 2½d. Obviously it is far cheaper to make use of pure cod-liver oil when it is possible to do so. Undoubtedly it would be possible to use pure cod-liver oil in many cases if the medical practitioner would refrain from prescribing an unnecessarily high daily dose.

There are many proprietary preparations containing cod-liver oil, some of which contain a proportion of pure cod-liver oil considerably less than 15 per cent. All of them are relatively expensive. It is claimed that they are less nauseating than cod-liver oil alone or the B.P.C. preparations containing cod-liver oil named above. It is not proper to make a comparison between one cod-liver oil preparation and another one unless the quantity administered of each contains the same amount of pure cod-liver oil.

Taking into account the food value of butter and margarine brought up to butter standard, it is cheaper to administer vitamins A and D by the use of these articles of diet than it is by the use of an expensive example of a proprietary preparation of malt and cod-liver oil. On the other hand, when it is not possible to remedy a deficiency of vitamins A and D by the inclusion of suitable foods in a patient's dietary, the administration of cod-liver oil is a cheap and efficient alternative. Unhappily, public funds out of which can be purchased expensive preparations of cod-liver oil are relatively plentiful, but money out of which can be bought articles of food of similar value is relatively scarce, except in the case of patients who are destitute. The administration of cod-liver oil in appropriate quantities and careful discrimination in the choice of a suitable cod-liver oil preparation would result in a material reduction in the annual drug bill.

I am indebted to Dr. A. A. Mussen, Medical Officer of Health and Chief Tuberculosis Officer for Liverpool, for permission to make use of some of the data appearing in these paragraphs.

# ASTHMA AND TUBERCULOSIS.

By L. HOFBAUER,
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The correlations between tuberculosis and asthma are varied, and not valued by all physicians in the same degree. The supposition is certainly wrong that diminution of breathing tissue effected by the infiltration and destruction of the lung produces dyspnœa, but severe asthma often appears in tuberculosis, especially when the patient changes his position or makes quick movements. These attacks of asthma not infrequently follow surgical operations such as pneumothorax or phrenicotomy. The following case may be cited:

Miss D. S. suffered from a severe hæmoptysis and underwent pneumothorax treatment. The hæmorrhage ceased, but she cannot now hurry or exert herself, because quick movements produce an asthmatic attack. This seems to be caused by a tight adhesion of the lung to the chest wall. By corresponding respiratory exercises, the adhesion has become stretched and the attacks of asthma have ceased. Change of posture produces asthma when scars are affixed on the diaphragm, on the bony wall of the chest, and this is because the lung becomes impeded in its respiratory movements. As I have shown in a former article,[1] a change of position in the sound man originates not only an alteration of the respiratory movements, but is followed by a static alteration of the diaphragm, and such deviation is impossible when pleuritic adhesions are attached to it.

In these cases the sensitive nerves of the diaphragm are thereby stretched and irritated, with resulting shortness of breath and a feeling of oppression: this occurs especially during the night, and is brought about by the stretching of such a pleuritic cord, and owing to a bent position may cause the patient to be awakened by an attack of asthma.

There is another way in which asthmatic attacks at night-time are caused in the case of a tuberculous patient. The oppression on the chest is not apparent when the patient alters his position, but is characterized by a persistent inclination to cough. During such repeated coughing the patient becomes more and more dyspnœic, until finally he has difficulty in breathing at all. Amelioration can only follow after he has expectorated. This sputum usually consists of a little dry black mucus, often stained with blood, because only by violent

[1] Hofbauer, *British Medical Journal*, November 16, 1929.

efforts in coughing can the adherent mucus be torn from the membrane. In such cases the attack of asthma is the consequence of an irritation of the mucous membrane that covers the lower parts of the respiratory tract. The numerous nerves in it are irritated because the covering mucus becomes dry and acts as a foreign body in the tract. This desiccation of mucus originates through mouth breathing instead of nose breathing.

A tendency to mouth breathing characterizes the children of tuberculous parents, although not yet infected with tuberculosis. In mouth breathing, the lack of adaptation causes loss of warmth and moisture not only to the mucus, but also to the ciliated mucous membrane. In such cases, asthma arises not only by irritation of the nervous system, but also by variation of the respiratory mechanism. The cough causes increasing inflation of the lungs with vitiated air until finally it is almost impossible to gain ingress of fresh air. The proportion between used and fresh air in the alveoli becomes deranged, and the asthma is the result of this disproportion. These types of asthma, being caused mechanically, can be prevented and treated by corresponding respiratory education.

When the asthma is caused by pleuritic scars, by adhesions of the lung involving the diaphragm and the chest wall, these cords must be stretched and massaged, and thereby softened by alteration of the trunk posture and corresponding respiratory exercises. The static changes of the chest wall, diaphragm, and abdominal organs, combined with the different actions of the respiratory muscles, especially when the horizontal position is reached gradually, always permit of a return to the normal state, and this without pain. Control with X-ray examination shows a corresponding cessation of pathological deformities and respiratory troubles, conforming to the disappearance of asthmatic attacks.

Drying and irritation of the mucous membrane in the respiratory tract can be prevented and eliminated by a systematic education in nose breathing, combined with warm inhalations through the nasal passages. The patient should not sleep in a room with open windows, especially when he suffers from morning cough or dry mouth. He should drink as little as possible in the afternoon, and should certainly avoid alcohol and mineral waters, because they cause swelling of the mucous membrane and cavernous tissue in the nose, thus making nose breathing more difficult.

Respiratory exercises must be used with caution in cases of tuberculosis. Hæmoptysis is not the only or the chief danger. There is also the possibility of too great an absorption of "autotuberculin" in the neighbourhood of the tuberculous focus which necessitates great care. A rapid rise of temperature, loss of appetite and weight are the effects of such a severe absorption of pleuritic liquid, which is the result

of rapidly increased respiratory exercises. Therefore it is absolutely necessary to exercise strict control, especially amongst tuberculous patients.

Gradually increased exercises, however, result not only in the disappearance of the asthmatic attacks corresponding to the strengthening of the adhesions painlessly, but also in amelioration of tuberculosis by the repeated production of antituberculin (especially in the skin) as a result of the absorption of small doses of autotuberculin from the tuberculous focus, as a result of each exercise.

# CRITICAL SURVEY.

## EDUCATION AND THE PHYSIOLOGICAL LIFE: THE OPEN-AIR SCHOOL.

By HARLEY WILLIAMS,

M.D., D.P.H.,

Medical Commissioner to the National Association for the Prevention of Tuberculosis.

In the history of tuberculosis work, it will be found frequently that measures intended to serve one particular purpose turn out to have a very much wider application. This is the case with the open-air school movement. Originally the aim was to provide education for the sick child in an environment somewhat approaching that of a sanatorium. As open-air treatment was the principal characteristic of the sanatorium, the name was given also to schools on this plan. But today the position has altered. No longer is it sought to confine the advantages of open-air education to tuberculous children, and mere ventilation has ceased to be the sole object even of the open-air schools themselves. They are to teach the physiological life; and seem destined as well to have a very important influence on educational methods. "It is no longer," says Sir George Newman, "a theoretical proposition that every school for the education of the young should be characterized by the principal features of the open-air school method." But this view, apparently, even as a theoretical proposition, is not taken by any but a small minority of our education authorities. In 1927-28 there were some five and a half million scholars in twenty thousand elementary schools, but less than eight thousand places were available in open-air schools, and these were confined to "delicate and debilitated children suffering from non-infectious conditions."

In spite of a lengthy period of probation and the admonitions of the central departments, there has been no perspicuous effort on the part of authorities in this country to provide a physiological environment for the school population. An attempt is made here to evaluate the causes which have produced such a remarkable indifference to this idea, which has such a great deal to recommend it.

### Historical Considerations.

The first authentic open-air school was established in the Grünewald, near Charlottenburg, Berlin. It seems to have been a recovery school, or what we should term a convalescent home, but

having, in addition, some educational purpose. It was followed by others. In England at Bostall Wood, Halifax, and Bradford, very successful beginnings were made towards permanent schools in the country. To them etiolated children were drafted by the school medical officers; lessons were usually conducted in the open-air, where also meals and rest were taken, and increased attention to physique formed part of the curriculum. In connection with the Paddington Tuberculosis Dispensary an open-air school was opened at Kensal House in 1910, and still takes children who attend the dispensary and require something more than home treatment.

It is significant that where the open-air schools were provided by education authorities they were established under an old Act of 1893, ordaining provision for the care of "blind, deaf, and defective children." This Act was superseded by the Education Act (1921), which also authorized the opening of nursery schools.

When medical inspection of school children began in 1907, it became recognizable that a great many cases of disease and defect originated before the child appeared at school. There was a blank period, and from the point of view of preventive medicine a most telling one. The newer psychology, too, was beginning to reveal that tendencies and habits were formed long before the age of school life. This, of course, had been suspected long ago; Robert Owen attempted to improve school environment at New Lanark in the twenties of last century. As far back as 1837, Friedrich Froebel opened his first kindergarten, and lived to see his schools widely acclaimed and then suppressed by a decree of the Prussian Education Department in 1851, on the ground that their author was of Radical tendencies.

But the most important historical side of the matter is the fact that, after twenty-three years of experiment and overwhelming evidence of their utility, there are today only 110 open-air schools in England and Wales which are recognized by the Board of Education.

**Divisions Construction, and Expenses of Open-air Schools.**

It would be well to distinguish between schools for tuberculous children and others. The ideal arrangement would be to have every school managed on the open-air school plan, but probably there will always be needed some of a quasi-clinical nature, where the frequent attendance of the school nurse and a certain amount of medical treatment will be required.

The London County Council, in addition to the regular open-air schools, recognizes four types of "open-air classes," composed of debilitated children, conveniently selected, and conducted as opportunity offers, without special buildings or modifications from the ordinary school practice.

In large towns the capital expense of building an open-air school seems to be greater on account of the amount of land required. The estimated cost, apart from the site of the buildings, for a school to hold 120 to 150 children, was, in 1923, £35 to £40 per place. In the appendix to the Chief Medical Officer's Report in 1927 an even higher estimate is given, and £60 per place is mentioned as the outside limit. The average cost of ordinary elementary schools varies between £30 and £45 per place, according to the age of the children and the amount of provision required for practical instruction.

The costs of maintenance are likewise high, owing to the smaller size of classes, medical supervision, and the provision of meals and travelling expenses. In 1923 it was estimated at £25 to £30 per annum for each child, and in 1928 the London County Council expended £32 per head. In public elementary schools the cost per child was, in 1929-30, £12 15s. 6d. Upon this point two important considerations arise. These establishments provide very much more than the average school requirements. They cater for children in such a condition of health that they would certainly have to be provided for somewhere. The ultimate economy in preventing infection from developing into clinical disease in later years may well turn out to be incalculable.

As regards the construction of schools, it may be that we are still making great blunders in building too permanently. In how many country villages do the substantially stone-built, but hygienically monstrous, schools of the eighties still encumber the way to progress? How many of our immense schools of today will be hopelessly out of date before the loan charges are paid off?

The open-air school idea should influence the aims and methods of the school architect. This view is cautiously expressed in the Educational Report of the L.C.C. (1928): "Even now, practice in the matter of health lags far behind knowledge, but educational authorities are realizing the wisdom of designing schools on open-air principles. The open-air schools are not solely responsible for the modern ideas in school construction, but there is little doubt that the success of the open-air experiment has had an appreciable effect."

Details of the scheme of building are not required here, but reference should be made to the articles of Mr. George Widdows, who has planned and carried through a considerable number of these schools for the Derbyshire authority. The type of classroom and the method of heating are discussed in the report for 1927 on "The Health of the School Child."

### Selection of Cases for Open-Air Schools.

Physiological environment in school should be the prerogative of every child, but for the present, as new open-air schools are opened, it

will be necessary to select cases. A comprehensive list is given in the Board of Education Report on the health of the school child for 1923:

1. Malnutrition, rickets, anæmia.
2. Delicate children living in a house with a consumptive.
3. Children with cervical tuberculous glands.
4. Convalescents after debilitating diseases—*e.g.*, pneumonia, measles, whooping cough.
5. Convalescents after operations for adenoids, glands in the neck, etc.
6. Blepharitis and chronic eye diseases associated with malnutrition.
7. Certain types of crippled children.
8. Nervous and highly strung children.
9. Myopes.

Research and a more extended use of the tuberculin test would probably enlarge the second and third of these categories.

**Régime and Methods of Open-Air Schools.**

It is important to visualize the effect that we aim should follow the establishment of an open-air school. Merely to improve the ventilation of classrooms, although very important, is not enough. A complete transvaluation of all the factors in a child's environment is necessary, and here, it seems, is the chance of achieving it. It is of no use building elaborate open-air schools and perpetuating hygienic anachronisms inside them.

Improved nutrition is a primary requisite. The open-air life quickens metabolism and raises the blood-pressure even in healthy, well-nourished persons. Apart from the need to stimulate healthy resistance, something extra in the way of calories of food value must be given to these debilitated children to make up for the increased elimination. Most of the open-air schools adopt a semi-residential system. The children have dinner and sometimes breakfast. These meals are made opportunities for social training in manners and general good habits. The advantages of a glass of milk half-way through the morning are rightly stressed.

A period of rest in the open air is a practice introduced from the Continent, and, according to Dr. James Kerr, is one of the most valuable features of the system. Some kind of frame with canvas stretched upon it is essental. Deck chairs give only a semi-recumbent posture, and do not allow of complete repose. The children lie down covered with rugs for a period of half an hour upwards. No conversation is allowed. Sometimes they sleep, and the rest in their homes at night-time seems to be in no way impaired. In the strain of modern life, full physiological relaxation in the middle of the day is very diffi-

cult to secure, and this, in children of susceptible years, must be the origin of much malaise and impaired growth.

In many of the schools the use of shower-baths forms a part of the régime, and has a valuable effect in promoting general nutrition and quickening the vaso-motor control of the skin. Hot baths are given for cleanliness once a week or so; on other days tepid sprays are used, followed by a colder douche.

**Results of Residence and Attendance at Open-Air Schools.**

From the educational side the results may be summarized in the phrase—briefer effort at greater intensity. In Nottingham 83 children were found to have an average intellectual advance of 17·4 months in the twelve months of their attendance at the open-air school.[1] This finding was based upon the use of intelligence tests, and corroborates the general impression of teachers that although less actual time is spent on the purely mental side of the school work, the results show that the mind is more apprehensive, and that "the curriculum, if it covered a smaller superficial area, has greater depths" (Newman).

Chronic catarrh of the respiratory tract seems to be very much improved under open-air conditions, as, indeed, every sanatorium worker would expect. Epidemics of colds and influenza do not spread in these schools, even when prevalent in the neighbourhood.[2]

More accurate is the measurement of the physical improvement obtained from the increase in weight. Dr. Ralph Crowley found that one group of children in an open-air school had gained as much at the end of one month as the ordinary scholars in six months. The child should be weighed every fortnight, and allowance should be made for a seasonal variation which is found in all children. In Sheffield, the average gain in four months was found to be 5·9 lbs. as compared with 2·4 lbs. in the ordinary school child.[3]

The second important index of beneficial change is found by measuring the amount of hæmoglobin with a Fleischl instrument. Dr. Crowley found that residence in an open-air school produced an increase of 10 per cent. Other German figures quoted by Dr. Kerr showed an even larger improvement, but there seems, here again, to be a seasonal fluctuation that must be allowed for. In Huddersfield Dr. Moore found an increase in the hæmoglobin in one group of girls of over 16 per cent. compared with a gain of only 5 per cent. in a controlled number not receiving open-air school treatment. There is clearly room for more systematic research on this point, not to determine that children are healthier in open-air schools, but to assess the degree of benefit compared with some standard. Increase of chest girth measurements

[1] See "Health of the School Child." Report for 1928, p. 28.
[2] "Health of the School Child," 1926, p. 17.
[3] Ralph Williams, *School Hygiene*, March, 1910.

are quoted, but there is difficulty in distinguishing increased lung capacity from a mere muscular and adipose thickening of the chest wall.

**Vocational Training at Open-Air Schools.**

Vocational training and the following-up of cases when they leave the school is emphasized by Dr. George MacDonald. At Springwell House, Clapham, an open-air school for definite clinical cases of tuberculosis, gardening, millinery, and commercial subjects are taught, and by a school-leaving conference an effort is made to secure suitable employment for the scholars commencing their careers. At Burrow Hill Colony the same combination of therapeutics and vocational education is being carried on among boys of fourteen to nineteen.

**Nursery Schools on Open-Air Lines.**

The inspiration of the movement for the establishment of nursery schools, which seems to portend a solution of so many of our social and hygienic problems, belongs to Miss Margaret MacMillan, who carries on in Deptford her first nursery school, which she founded with her sister, the late Miss Rachel MacMillan, in 1911. "In it," says Miss MacMillan, "we learned to advocate not merely gardens as an annexe, but as the only proper kind of school for all children, but above all, for young children up to their eighth and ninth year."

The Minister of Health and President of the Board of Education have recently issued a joint circular, appealing to local authorities to exercise their powers in this matter of providing nursery schools for children between two and five years. They state that the objects are twofold—nurture and education. The numbers in such schools may be increased to about one hundred and fifty without undue risk of spreading infection, since the possibility of this is much diminished under open-air conditions.

**Modern Position of Open-Air Schools.**

It would seem, then, that from the empirical standpoint open-air schools and nursery schools have justified themselves. After nearly thirty years' trial, we find nowhere anything but praise for the idea. And yet it has been put into practice only by an infinitesimal number of our educational authorities.

From time to time in our national policy of education there comes a sectarian convulsion, and the principles at stake are sufficient to divide opinion and even to menace the stability of His Majesty's Government. The principle of physiological environment for school children is not less important than these, and yet the cause for open-air schools is one that seems to find no martyrs and few convinced protagonists. None of our great preparatory schools has given the lead. Probably some re-arrangement of the financial basis of the loans

for school construction is necessary. It would be more profitable for authorities to build less substantial structures with a shorter period of usefulness, so as to be capable of adaptation to changing conditions.

Hesitation, and even obstruction, on the part of parents has been found. But that is the case when any experiment is made, and it melts away rapidly. Teachers say that they much prefer working in open-air schools, and the novelty in the whole conception seems to be an agreeable stimulus to their work.

From the standpoint of a worker in tuberculosis, it seems very important that the preventive idea should be recognized, and that open-air schools should be considered, not merely as clinics for the few pronounced cases of active disease, but a nursery of protective influences for the whole of our school population.

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*See also:*


1. Premier Congrès International des Écoles de Plein Air, Paris, 1922.

2. Conférence Internationale de Protection de l'Enfance, Paris, 1922. Écoles de Plein Air. Comptes Rendus, Ier vol.

# ASSOCIATIONS AND INSTITUTIONS.

## THE EDWARD L. TRUDEAU FOUNDATION FOR RESEARCH AND TEACHING IN TUBERCULOSIS, TRUDEAU SANATORIUM, SARANAC LAKE, STATE OF NEW YORK.

THE Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis of the Trudeau Sanatorium, the Director of which is Dr. Edward R. Baldwin, occupies a unique position and one of world-wide distinction among associations and institutions dealing with tuberculosis. Dr. Baldwin has kindly provided the following note regarding the latest information relating to the Foundation, which has its natural centre in connection with the Trudeau Sanatorium, which is situated at Saranac Lake, in the Adirondack Mountains, in the State of New York.

The forty-fifth annual report of the pioneer cottage sanatorium for tuberculosis contains an illustration taken as an aerial photograph. We are glad to have this reproduced in the *B.J.T.* The picture indicates the extent of the park, and shows most of the buildings, although some cannot be seen because of the trees. There are altogether fifty buildings, including thirty-two dormitories for the housing of patients. The total room capacity is 175, but by doubling in some of the rooms the patients in residence often number 200, the demand being so great, particularly from the small-salaried class of workers. Even in the face of the phenomenal reduction in mortality and sickness from tuberculosis and the development of a great number of new public and private sanatoria which have been established in recent years, the Trudeau Sanatorium continues to carry a waiting list. We do not, however, intend to enlarge the institution; it had, in fact, barely 125 beds when the late Dr. Trudeau died in 1915, with the belief that it was then complete, and all that was needed was more endowment to maintain its semi-charitable character. The rate of $15 a week is quite insufficient to cover the present cost, which ranges from $24 to $25. The endowment is about $1,200,000, but annual gifts of $15,000 to $25,000 are needed in addition to the income. During the present era of surgical treatment more advanced cases have been received, and thus more patients who require rest in bed have to be provided for. The aim in future construction will be to supply more rooms for hospital patients. In the experience of modern tuberculosis examiners in America there are yet but few actually incipient cases applying for sanatorium admission. Consequently, most of the patients coming for treatment require a period of bed rest, according to the present standards. Better results have also been obtained since the general use of artificial pneumothorax and phrenicectomy in moderately

THE TRUDEAU SANATORIUM, SARANAC LAKE, STATE OF NEW YORK.

The illustration is a reproduction of a photograph taken from an aeroplane and indicates the grouping of the chief buildings forming the Sanatorium.

advanced cases after a period of bed rest. The educational and research features of the Trudeau Sanatorium have expanded the influence of its teaching to a much greater extent than can be measured. The large number of young physicians and nurses who seek treatment here carry away knowledge of value to all parts of the country. The Trudeau School and the Nurses' Training School, conducted for over a decade, are undoubtedly potent aids in the spread of technical knowledge, both of the diagnosis and treatment. The next step in the development of teaching is the establishment of a postgraduate course for nurses, particularly those engaged in public health work. A demand for this is felt in view of the lack of such instruction in ordinary undergraduate training. No doubt tuberculosis will continue a major problem for many years, and the more important measures of control depend upon the education of physicians, nurses, and patients.

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In connection with the forthcoming Congress of the Royal Institute of Public Health to be held at Frankfort-on-Main, Germany, from May 19 to 24, under the presidency of the Marquis of Reading, an important section is to be devoted to tuberculosis. The British president of this section is Mr. David Davies, President of the King Edward VII. Welsh National Memorial Association, who will deal with "Tuberculosis Schemes in England and Wales." Among subjects to be considered are the following: Tuberculosis as an International Problem, The Tuberculous Child, Diet in the Treatment of Tuberculosis, Dust and Tuberculosis, Radiation Therapy in Tuberculosis, Pulmonary Tuberculosis and Marriage, Mountain Climates and the Treatment of Tuberculosis. Many recognized leaders in the tuberculosis movement are taking part in the discussions. Full particulars regarding the Congress may be obtained on application to the Hon. Secretaries, Royal Institute of Public Health, 37, Russell Square, London, W.C. 1.

# NOTICES OF BOOKS.

## CONTINENTAL WORKS.

THERE can be no doubt that tuberculosis in childhood is a subject upon which much more research has been done abroad than in England. One may therefore welcome Dr. Levesque's studies on tuberculosis in the child, for it is a particularly good concise example of up-to-date French thought.[1] The subject is divided into two parts—the primary infection and tuberculosis of re-infection; the latter half is better understood in this country as it resembles closely the adult type of the disease. The author lays main stress on the importance of the primary focus, and rightly insists on the error of making tuberculosis of the tracheo-bronchial glands the centre of interest of tuberculosis in childhood. He confirms St. Engel's statement that in the anterior-posterior X ray, except along the right border of the trachea, the bronchial glands are masked by the heart and great vessels and cannot be seen: and he deprecates the common habit of calling increased shadows at the hilum enlarged hilar glands. The primary focus in 30-37 per cent. of cases is projected into the hilum, and this forms the shadow. The chapter on prognosis is particularly good: one has always to discover whether one is dealing with primary infection or re-infection. This book can be thoroughly recommended to all who have to deal with tuberculosis in childhood, and will present a new outlook to the reader brought up on traditional English methods. JOHN GIBBENS, M.B., M.R.C.P.

Professor Émile Sergent has prepared an excellent small volume on the interpretation of the auscultatory signs in direct disease.[2] He describes such manifestations as bronchial, cavernous, and amphoric breathing, and in the latter half of the book this interpretation is confirmed by the experimental reproduction of such types of breath sounds. The author follows Laennec in distinguishing two main types of respiration only—vesicular and bronchial breathing: all other pathological sounds, such as cavernous or amphoric breathing, are viewed as modifications of these basic types, due to the presence of air, fluid or solid lung. The two leading conclusions of the book are: (1) A pathological breath sound does not originate in the part of the lung over which it is heard; (2) every pathological breath sound is the result of the transmission of the normal laryngo-tracheal breath sound. The diagrams are good, and the author is to be congratulated on having marshalled the facts of his subject clearly and in logical sequence.

JOHN GIBBENS, M.B., M.R.C.P.

Dr. Léon Schekter has written a little work on "The Conquest of Pulmonary Tuberculosis."[3] It is difficult to determine exactly what

[1] "Étude Clinique de la Tuberculose Infantile." By Jean Levesque. Pp. 150. Paris: Masson et Cie. 1931. Price 22 fr.

[2] "Les Bases Fondamentales de l'Auscultation." By Professeur Émile Sergent. Pp. 60, with 2 illustrations. Paris: Doin et Cie. 1931. Price 16 fr.

[3] "Pour Vaincre la Tuberculose Pulmonaire." By Dr. Léon Schekter, of Boulogne-sur-Mer. Pp. 150. Paris: Doin et Cie, 8, Place de l'Odéon. 193 . Price 18 fr.

type of reader the author had in mind when he wrote his book. Medical advisers will find little new in it, while it is not concise or pithy enough for the general public; it contains, for instance, short elementary descriptions of the percussion and auscultation of the lungs, which can have little except medical interest. Perhaps the book is intended for nurses, health visitors, and social workers, who would undoubtedly gain something from reading it. We rather gather that Dr. Schekter thinks it will be of service to consumptive patients in regulating their entourage. The actual statements and advice given are sound, although it is unusual to read of the dangers of strong coffee in pulmonary tuberculosis. JOHN GIBBENS, M.B., M.R.C.P.

Dr. Armand-Delille is one of the leading French investigators on the physiological and therapeutic effects of natural and artificial light, particularly in the treatment of tuberculosis. His latest work is one which should be studied by all interested in the application of light in the prevention and arrest of disease.[1] It will interest notably the medical adviser and the hygienist, but especially those responsible for the rational upbringing of children. All engaged in the conduct of open-air schools will appreciate Dr. Armand-Delille's informing and serviceable work. It is a reliable, up-to-date exposition regarding the use of sunlight, ultra-violet rays artificially produced, and irradiated materials in preventive and curative medicine. Considerable space is given to an explanation of heliotherapy in tuberculosis, and illustrations appear of cases undergoing treatment at Dr. Rollier's clinics at Leysin and elsewhere. Pictures are given of Dr. Rollier's fine work-clinic at Leysin, the school in the sun: Les Noisetiers-en-Cergnat at Le Seppey, near Leysin, and establishments for adults and children at other centres. A valuable chapter is devoted to the discussion of the sun cure and physical development and education. The first and major part of the volume is devoted to heliotherapy, while the second and shorter part is reserved for the consideration of actinotherapy and irradiated foods useful in the treatment of rickets and other morbid conditions. Dr. Armand-Delille has rendered a notable service by the issue of his attractively illustrated book, and we hope that an edition in English will be published at an early date.

In reviewing the first volume of the encyclopædic work on Tuberculosis last year issued by the firm of G. Thieme, we anticipated that the high standard set would be maintained in subsequent volumes. The second volume which has now appeared confirms this opinion.[2] In it Dr. Blumenberg treats exhaustively of the so-called ultra-microscopic form of the tubercle bacillus and *inter alia* quotes the recent work of Stanley Griffith and Gloyne which has failed to confirm Calmette's opinions on this question. Other subjects dealt with are the tendency for tuberculosis to attack the apex of the lung, extra-familial tuberculous infection, residential institutions for tuberculosis, the selection of pulmonary cases for treatment, the clinical understanding of tuber-

[1] "Heliothérapie, Actinothérapie, et Stérols Irradiés." By Dr. P. F. Armand-Delille, Président du Comité National des Écoles de Plein Air. Pp. 191, with 84 figs. Paris: Masson et Cie, 120, Boulevard Saint-Germain. 1931. Price 32 fr.

[2] "Ergebnisse der Gesamten Tuberkuloseforschung" ["Collected Results of Tuberculosis Investigation"]. Edited by H. Assmann, Leipsic; H. Beitzke, Graz; H. Braeuning, Hohenkrug-Stettin; St. Engel, Dortmund. Vol. II. Pp. 490, with 106 illustrations. Leipsic: G. Thieme. 1931.

culosis in comparison with a French inquiry, alterations in mineral and water metabolism in tuberculosis, artificial bilateral pneumothorax, prognosis in tuberculosis of children, anatomy of the interlobar spaces, the X-ray appearances and their clinical significance. The matter is excellent, and our only criticism is that the editors might have planned a better arrangement. As it is the articles are not grouped according to their subject, but each one is presented as an individual essay. A. S. M.

Dr. Mrowka in his new monograph states that renguera is a paralytic disease occurring among domestic animals in Peru [1] The lesion affects the voluntary striped muscles and is also prone to involve the cardiac muscle. Histologically, the cells in renguera resemble the giant cells of tuberculosis. On this evidence the author builds up an elaborate theory to the effect that tuberculosis may occur without the presence of tubercle bacilli and that it is due to a filtrable virus.

A. S. M.

The eighth number (December 1930) of the Italian journal *Lotta contro la Tuberculosisi* is of special interest. Professor Ugo Soli of Palermo contributes an article maintaining the thesis that Napoleon was attacked by pulmonary tuberculosis during the Italian Campaign of 1796-1797. He considers that Napoleon's sojourn in Italy and the warm dry climate of Egypt promoted quiescence and that permanent arrest was secured by the date of the Empire. The records of the autopsy of Napoleon by Antonmarchi support the contention, although the ultimate cause of the Emperor's death was cancer of the stomach. The article is illustrated by a number of Napoleon's portraits. In the same number Dr. T. Emanuele describes a rare phenomenon observed in a case of artificial left-sided pneumothorax. A jerking movement perceptible to palpation occurred, caused by the heart and collapsed lung in close adherence swaying and knocking violently against the thoracic wall when the body was suddenly bent backwards and forwards. The author terms the condition "cardio-pulmonary shock" and discusses its possible causes. Other articles are concerned with injections of alcohol into the intercostal nerves in the treatment of pulmonary tuberculosis, and the anti-tuberculosis dispensary organization in Italy. A. S. M.

## TUBERCULOSIS IN INFANCY AND CHILDHOOD.

Dr. J. A. Myers has prepared an excellent work on tuberculosis in childhood, giving valuable information regarding the earlier stages of the disease at its most interesting phase.[2] The work is expressed in a positive form, and there are figures, radiograms, and good references.

[1] "Die Filtrierbaren Krankheitserreger und Neues zum Tuberkuloseproblem. Gedanken zur Vererbungswissenschaft auf Grund von studien an der Lahmkrankheit (Renguera) der Haustiere in Peru" ["The Filtrable Causative Organisms of Disease and a new Light on the Tuberculosis Problem. Reflections on the Science of Heredity based on Studies of the Paralytic Disease (Renguera) of Domestic Animals in Peru"]. By Dr. Med. Vet. Fritz Mrowka. Pp. vii + 208, with 108 illustrations in the text and 6 coloured plates. Leipsic: J. A. Barth. 1931. Price Rm. 15.

[2] "Tuberculosis in Children." By J. A. Myers, M.D., an Associated Professor of Preventive Medicine, Minnesota. With Introduction by Alan K. Krause, M.D., Editor, *American Review of Tuberculosis*. Pp. xiv + 208, with 43 figs. London: Baillière, Tindall and Cox. 1930. Price 16s. net.

The author begins with an account of the tuberculin test. It seems unfortunate that more work in this country has not been carried out to discover the degree of tuberculous infection in young subjects. Many clinicians, feeling that some amount of infection is almost inevitable, overlook the fact that the dosage must be an important influence in determining whether or not resistance will break down. The incidence of tuberculous infection in childhood in America and this country appears to be diminishing, and the value of the tuberculin tests should increase. Once infection is discovered, every effort should be made to guard against further exposure to tuberculous invasion. Dr. Myers provides accurate descriptions of the various systemic lesions and their physical signs. Tuberculous disease of the bones and joints is well summarized by Professor Giessler of Minnesota. The section on family disease, while not novel, deals with this aspect in a refreshing way, and restates the need for what is called in this country the "march past" of other members of the household. There is an illuminating chapter on the danger of infection from elderly people. This manual will be helpful to the practical worker, whether general physician or dispensary officer, for it affords a serviceable and scientific background for everyday problems arising in connection with medical and social services among young subjects.

HARLEY WILLIAMS, M.D.

## TUBERCULOSIS AND HOUSING.

Dr. W. Bolton Tomson, Chairman of the Tuberculosis Care Committee for the Borough of Hastings, has devoted special study to the medico-sociological problems of tuberculosis, and has written several important works dealing with practical aspects of the subject. His latest is a timely, suggestive and helpful contribution to the difficult question of housing in its relations to tuberculosis.[1] The author's main aim has been to present reliable data, to prove the importance of providing tuberculous subjects with suitable homes, and to suggest ways and means whereby this can be best accomplished. Dr. Tomson shows how overcrowding and bad housing are influential in the production and maintenance of tuberculosis. He indicates how vast sums are wasted or ineffectively expended in tuberculosis schemes in this country. Sanatorium treatment has certainly proved disappointing. The most desirable requirement is to provide suitable hygienic abodes for tuberculous subjects, and this Dr. Tomson urges on the attention of Tuberculosis Care Committees and others. He explains in detail how plans may be made to materialize, by a simple, practical re-arrangement of existing powers and a proper employment of available machinery. We earnestly commend Dr. Tomson's brochure to the unprejudiced consideration of medical officers of health, tuberculosis officers, members of Tuberculosis Care Committees, and all others interested in the prevention and arrest of tuberculosis.

[1] "The Housing Problem in its Relations to the Tuberculous, and Tuberculosis Care Committees." By W. Bolton Tomson, M.D., Medical Superintendent of the Sea View Sanatorium, St. Leonards-on-Sea, etc. Pp. 26. London: Baillière, Tindall and Cox. 1930. Price 1s.

## INTESTINAL TUBERCULOSIS.

Drs. Lawrason Brown and Homer L. Sampson of the Trudeau Sanatorium, Saranac Lake, have provided as the first volume of the Trudeau Foundation Studies a monograph of special interest to all tuberculosis workers.[1] It has speedily passed into the second edition. Dr. Walter B. James in his Foreword to the first edition showed that when the famous American pioneer in tuberculosis, Dr. E. L. Trudeau, founded the Adirondack Cottage Sanatorium forty years ago, he was possessed by a dominant impulse to unveil the mysteries of tuberculosis so that the control of the disease might be placed in men's hands, and the power given to them to protect themselves from its ravages. And now in the Foreword to the second edition Dr. James Alexander Millar again reminds us that "the mission of the Trudeau Sanatorium as visualized by its founder, Dr. Trudeau, has been first to care for the sick, and, secondly, to add to the sum of human knowledge of tuberculosis through the study of the clinical material that these patients afford." The work before us is the outcome of extensive investigations carried out at the Trudeau sanatorium and an extensive study of the literature of intestinal tuberculosis. No less than 5,542 patients have been examined roentgenologically in regard to intestinal tuberculosis, and of these 1,465 have been found to be affected. The volume opens with a history of intestinal tuberculosis, the anatomy of the human intestines, and the normal physiology of intestinal movement. Then follow chapters dealing with the pathological anatomy, etiology, site, and lesions of primary and secondary intestinal tuberculosis and its clinical symptoms. A series of important chapters are devoted to diagnosis and particularly to laboratory and Roentgen-ray methods. The work closes with important chapters on prognosis, prophylaxis, and treatment. The conclusions arrived at deserve fullest consideration. The authors hold that intestinal tuberculosis is the most frequent complication of pulmonary tuberculosis, being found in from 50 to 80 per cent. or more of all autopsies carried out on patients dying of pulmonary tuberculosis. Of 1,801 consecutive routine cases at the Trudeau Sanatorium 148 had definite intestinal tuberculosis. It is further stated that in 1927, 84,557 persons died from pulmonary tuberculosis in continental United States, and that of these 40,000 to 65,000 also had intestinal tuberculosis. It is also pointed out that the presence of tubercle bacilli in the stools is of but little diagnostic value, as they are found in from 85 to 95 per cent of all patients having tubercle bacilli in the sputum. The satisfactory study of a case must include the employment of modern diagnostic methods—the barium meal and the use of a properly conducted X-ray examination: "No moderately or far-advanced case of pulmonary tuberculosis can be assumed to have been thoroughly examined unless a Roentgen-ray study of the bowel has been made. This is the only method which will diagnose intestinal tuberculosis in its incipiency or exclude it at

[1] "Intestinal Tuberculosis: Its Importance, Diagnosis and Treatment; A Study of the Secondary Ulcerative Type." By Lawrason Brown, M.D., Chairman of the Medical Board, and Homer L. Sampson, Roentgenographer, of the Trudeau Sanatorium, Saranac Lake, New York. Second edition, thoroughly revised. Pp. xii + 376, with 122 illustrations and 2 coloured plates. London: Baillière, Tindall and Cox. 1930. Price 22s. 6d.

any stage." This first volume of the Trudeau Foundation Studies is one which will arouse discussion and further research, and it should certainly lead to an improvement in the investigation of cases. We earnestly commend the work to the unprejudiced consideration of medical superintendents of tuberculosis sanatoria, tuberculosis officers, and all who are responsible for the diagnosis and treatment of tuberculous subjects.

## THE SYMPTOMS OF VISCERAL DISEASE.

Dr. Frances Marion Pottenger's notable monograph on the symptoms of visceral disease, first published in 1919, has now reached its fourth edition, thus affording striking evidence of the value rendered by this highly original work. It is an invaluable contribution to scientifically directed clinical medicine.[1] Dr. Pottenger has devoted the greater part of his professional career to the study of diseases of the chest, but he is no short sighted specialist, but a broad-minded physician, who realizes, as he clearly stated in his first edition, that "no organ can be understood except in its relationship to other organs and to the body as a whole." And so as a philosophic clinician and a practical physician with vision and experience he has devoted the best section of his life to the elucidation of problems of symptomatology. His fine work is an unrivalled exposition of symptoms in terms of neurology, symptoms which call for interpretation in everyday clinical observation of visceral disease. The work is really a study in pathological physiology, and is largely a discussion of viscerogenic reflexes, and an elucidation of problems connected with the vegetative nervous system. Dr. Pottenger explains in the preface to his last edition that he has not only discussed the newer physiological principles involved in the study of visceral neurology, but has also attempted to correlate them in such a manner as to make them readily applicable to clinical problems. He holds that the chief function of the vegetative nerves is that of correlating and integrating action whereby activity in each living organ and structure is brought into harmony with other organs and structures in states of health, and into disharmony in conditions of disease. The volume is composed of thirty-four chapters grouped into three parts, dealing respectively with the vegetative nervous system, the relationship between the vegetative nervous system and the symptoms of visceral disease, and the innervation of important viscera, together with a clinical study of the more important viscerogenic reflexes. We would particularly direct the attention of readers of this Journal to the suggestive and helpful sections dealing with the chest and particularly the respiratory tract. The volume is generously and effectively illustrated, a number of plates being in colour. At the end of each chapter is a serviceable bibliography. Within the limits of a short notice it is impossible to indicate the comprehensiveness and practical value of Dr. Pottenger's able monograph. It is a work which every up-to-date physician should possess and study.

[1] "Symptoms of Visceral Disease: A Study of the Vegetative Nervous System in its Relationship to Clinical Medicine." By Frances Marion Pottenger, A.M., M.D., LL.D., F.A.C.P., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. Fourth edition. Pp. 426, with 87 illustrations in the text and 10 colour plates. London: Henry Kimpton, 263, High Holborn, W.C. 1930. Price 31s. 6d.

## MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

Drs. W. J. Fenton and L. S. T. Burrell have collaborated to produce an excellent general work on diseases of the chest for the general practitioner and senior student.[1] The authors explain in their introduction that the volume is not intended to be a standard text-book, and references have generally been omitted. It has been written mainly from the clinical standpoint, and embodies the personal views and experiences of the writers. The work is one which will appeal to those for whom it has been prepared. Complicated classification, unprofitable discussions, and purely hypothetical conceptions have been avoided, while special consideration has been given to the commoner diseases and to essential matters relating to diagnosis and treatment. Over 140 pages are devoted to the section dealing with pulmonary tuberculosis. This is an excellent survey of all practical features relating to tuberculosis of the lungs. Special praise must be given to the chapter dealing with treatment, which is just such as will prove helpful to practitioners desiring to co-operate effectively with tuberculosis officers, or to undertake the whole management of a tuberculous patient. A special chapter is devoted to special treatment, such as artificial pneumothorax, oleothorax, thoracoplasty, pneumolysis, phrenic evulsion, tuberculin, anti-tuberculous serum, certain drugs, including iodine, calcium, and sanocrysin, shock therapy, climate and treatment by sunlight or artificial light. The concluding chapter deals with spontaneous pneumothorax. The volume contains a few wisely selected illustrations and charts.

Dr. B. L. Worsnop has produced a valuable little volume on X-rays.[2] It is a member of Methuen's Monographs on Physical Subjects, of which Dr. Worsnop is the general editor. Medical workers and students of physical and allied science will appreciate this concise and informing "outline." Early experiments are first described, and then follow detailed accounts of the determination of wave lengths, X-ray spectroscopy, the scattering of X-rays, emission and absorption, photo-electrons and ionization, and direct reflection, refraction, and diffraction. The work is addressed to serious students desiring a reliable and up-to-date presentation of the fundamental facts relating to X-rays. It is a handbook which medical practitioners preparing for the Diploma in Radiology of the University of Cambridge will find of considerable assistance. The diagrams are particularly helpful, and there is a short bibliography.

Dr. E. Ashworth Underwood has rendered a notable service by the issue of a really reliable and helpful handbook for nurses responsible for the care of tuberculous patients.[3] It may be said at once

[1] "Diseases of the Chest." By W. J. Fenton, M.D., F.R.C.P., Consulting Physician, Charing Cross Hospital, and L. S. T. Burrell, M.D., M.R.C.P., Physician Royal Free Hospital and Hospital for Consumption and Diseases of the Chest, Brompton. Pp. 380, with illustrations. London: Jonathan Cape Ltd., 30, Bedford Square, W.C. 1. 1930. Price 15s.

[2] "X-Rays." By B. L. Worsnop, B.Sc., Ph.D., Lecturer in Physics, King's College, London. With a Preface by O. W. Richardson, F.R.S., Yarrow Research Professor of the Royal Society. Pp. ix + 101, with 36 diagrams. London: Methuen and Co., Ltd., 36, Essex Street, W.C. 1. 1930. Price 2s. 6d.

[3] "A Manual of Tuberculosis for Nurses." By E. Ashworth Underwood, M.A., B.Sc., M.B., Ch.B., D P.H., Deputy Medical Officer of Health, County Borough of Rotherham, and Medical Superintendent of the Oakwood Hall Sanatorium, Rother-

that this is a work which should be read by all tuberculosis officers and medical superintendents of sanatoria who are expected not only to assist in the training of nurses, but to provide sensible and helpful instruction for patients. It is much to be feared that in many existing institutions for tuberculous men and women the education of the patients in anti-tuberculosis hygiene is neglected or inadequately provided. Dr. Underwood's manual is informing, stimulating, and is manifestly based on experience of the requirements of tuberculosis nurses. It is concise, lucid, and trustworthy, and will be specially helpful as a guide to those who are preparing for examinations with a view to securing a certificate of proficiency in tuberculosis work, such as that issued by the Tuberculosis Association. The book consists of fourteen chapters, dealing with all such aspects of tuberculosis and practical measures for the care of the tuberculous as should be fully appreciated by nurses undertaking the treatment, management, and instruction of tuberculous subjects. In the proper care of a tuberculous patient, if success is to be attained, there must be co-operation, patient, doctor, nurse, and patient's relatives and friends all loyally combining, and in securing such co-operation the wise, tactful, and well-trained nurse can accomplish much. Dr. Underwood's work is excellently planned and written, and at the end of each of the fourteen chapters is a serviceable summary. There is also a helpful glossary of technical terms. We hope that in the next edition the illustrations will be more numerous. The publishers have done their part admirably, paper and printing being of the best, but many nurses will regret that the price is not lower; perhaps this may be arranged for in the next edition.

Dr. J. V. C. Braithwaite's manual on Infant Feeding should be of assistance to young general practitioners and others engaged in the consideration of dietetic problems in pediatric practice.[1] It is based on practical experience gained not only in hospitals but in the conduct of private practice. Special attention is devoted to breast feeding and the various nutritional disorders of infancy. The Appendix provides data relating to calorific values and milk mixtures, and presents useful recipes. There is also a serviceable Bibliography. Dr. Braithwaite holds that cases of open maternal tuberculosis usually indicate weaning, but says that according to some authorities suckling "may be safely continued provided that the child is given tuberculin inoculations." He, however, adds: "In general practice, however, it is usually best to separate the child from an actively tuberculous mother as completely as possible for both their sakes." There is a serviceable section on tuberculous meningitis in which it is shown that this condition may closely resemble one of the toxicoses.

Cancer still remains among the scourges of mankind which continue to wreck human health and spoil happiness. But knowledge grows and progress is being made. The Council of the British Empire Cancer Campaign have rendered a far-reaching service by the publica-

ham. With an Introduction by Professor J. R. Currie, M.A., M.D., M.R.C.P., D.P.H., Professor of Public Health in the University of Glasgow. Pp. vii+272. with 30 illustrations. Edinburgh: E. and S. Livingstone, 16-17, Teviot Place. 1931. Price 6s. 6d.

[1] "Infant Feeding in General Practice." By J. V. C. Braithwaite, M.D., M.R.C.P., Physician in Charge of Children Out-Patients, Leicester Royal Infirmary and Children's Hospital. With a Foreword by H. C. Cameron, M.A., M.D., F.R.C.P. Pp. xv+140. Bristol: John Wright and Sons, Ltd. 1930. Price 4s. 6d.

tion of a booklet in simple non-medical language explaining the essential facts regarding cancer, its nature and manifestations, precancerous conditions, earliest signs, prevention and treatment.[1] It is a work which every thoughtful adult should read. The conclusions of this remarkable and authoritative little work are summarized in the following sentences, which are printed in capital letters: (1) Cancer is relentless if ignored. (2) In its early stages very often cancer is quite painless. (3) In its early stages cancer is a purely local disease. (4) In its early stages very often cancer can be treated with complete success. (5) It is in its earliest stages that competent medical advice must be sought. (6) The only reliable measures of treatment for cancer known at present are surgical operation and radiation. (7) For complete success treatment of cancer by operation or radiation must be extensive and adequate.

The Director of the Rowett Research Institute, Bucksburn, Aberdeen, Scotland, has kindly provided us with a copy of the latest collection of papers issued from the Institute.[2] The volume consists of reprints of no less than seventy-one communications dealing for the most part with problems of animal chemistry, physiology, and pathology. Among the records of researches are important papers relating to the chemistry of blood, dietetics, lactation, estimation of iodine, nutritive properties of milk, mineral metabolism, nutrition, and vitamins. Readers of this Journal will be specially interested in the papers on the Effect of Pasteurization on the Nutritive Value of Milk, and the studies of Dr. J. B. Orr, Dr. Gerald Leighton, and Miss Mabel L. Clark on Milk Consumption and the Growth of School Children. Practically all the papers composing the volume have already been published in journals devoted to agricultural science, biochemical researches, and the investigation of medical science, but for purposes of reference it is convenient and helpful to have them in permanent, bound-volume form. This collection of papers affords striking evidence of the notable national service which is being rendered by the Rowett Research Institute.

Dr. Marian Thornett has written a suggestive book based on observations made in a Squint Training Clinic in a slum centre in London.[3] Dr. Jane Walker in her commendatory Foreword says: "The core of the book lies in the teaching that a dry, well-ventilated skin is a sure protection against chill; that a cool dry skin is able to keep the body at an unvarying comfortable temperature, which a warm and especially a damp skin is utterly incapable of doing." We certainly know but little regarding the functions of the skin, and but little attention is devoted to its hygiene. Dr Thornett does not hesitate to express her opinions dogmatically upon the management of the skin and many other matters bearing on health, particularly in early life. Her views on clothing, baths, and exercises merit serious

[1] "The Truth about Cancer." With a Foreword by the Marquis of Reading. Pp. xv+124. London: Published for the British Empire Cancer Campaign (the offices of which are at 12, Grosvenor Crescent, Hyde Park Corner, S.W. 1) by John Murray, 50, Albemarle Street, W. 1. 1930. Price 2s. 6d.

[2] "The Rowett Research Institute—Collected Papers." Vol. II. Edited by John Boyd Orr, D.S.O., M.C., M.A., D.Sc. Pp. xv+588, with illustrations. Issued from the Reid Library of the Rowett Research Institute. Aberdeen: Edmond and Spark. 1930. Price 21s.

[3] "Chill: Its Dangers and Prevention." By Marian Thornett, F.R.C.S.I. With a Foreword by Dr. Jane Walker. Pp. xiii+194, with 6 illustrations. London: J. and A. Churchill, 40, Gloucester Place, Portman Square. 1931. Price 3s. 6d.

discussion. The concluding chapter deals with "Hardening," a subject of special interest to those conducting sanatoria and open-air schools for tuberculous and other delicate children.

Dr. Francis Bach has published his Chadwick Lecture on Rheumatism together with a communication presented at last year's Liège International Congress on Rheumatic Diseases in brochure form.[1] Here are presented in suggestive and informing sections the author's experiences and views, together with valuable records of his observations at foreign clinics, and a valuable account of the Research Service of the New York Heart Association. There are also particulars regarding cardiac clinics, convalescent homes for children suffering from heart disease, and "sheltered workshops."

Mr. Cowderoy has issued a new edition of his excellent pocket-book on meat and food inspection.[2] It is intended primarily for sanitary inspectors. There are descriptions of tuberculous disease as met with in various animals used for human consumption, together with sections on Public Health Meat Regulations, Contamination of Food, The Tuberculosis Order, 1925, The Milk (Special Designations) Order, 1923, etc.

Dr. Edmund Hughes has written an erudite and philosophic monograph on Seasonal Variation in Man, which many readers of this JOURNAL will find suggestive. The author bases his thesis on an ingenious hypothesis. His work has developed from researches on infantile rickets and is indeed an elaboration of an unpublished paper on "A Hypothesis of Disease Characters based on Natural Descent." Dr. Hughes, after formulating his hypothesis and explaining its implications, devotes several chapters to physiological and pathological discussions, and then follow chapters on Deficiency of Substances contained in Fatty Reserves and Excess and Deficiency of Unreserved Substances. This elaboration of the idea of a co-ordinate seasonal plan merits fullest consideration.[3]

The Ministry of Health has issued a report full of practical suggestions dealing with swimming baths: pollution, transmission of infection, methods of purification, filtration plants, chlorination, and the management of a continuous system.[4]

The Department of Health for Scotland has issued an important report on the influence of milk in the dietary of school children, and showing that "the effects of raw and pasteurized milk on growth in weight and height are apparently equal."[5]

[1] "Rheumatism: Its Significance in Youth and Middle Age," and "On Acute Rheumatism as a Manifestation of Rheumatic Fever." By Francis Bach, M.A., D.M. Pp. 68. London: P. S. King and Son, Ltd., Orchard House, Great King Street, Westminster, S.W. 1. 1930. Price 2s.

[2] "Notes on Meat and Food Inspection for Sanitary Inspectors." By John T. Cowderoy, F.S.I.A., Chief Sanitary Inspector, Borough of Kidderminster. Third edition. Pp. 133. London: The Sanitary Publishing Co., Ltd., 8, Bream's Buildings, E.C. 4. 1930. Price 3s. 6d.

[3] "Seasonal Variation in Man (A Theory)." By Edmund Hughes, M.R.C.S., L.R.C.P. Pp. x+126, with illustrations. London: H. K. Lewis and Co., Ltd. 1931. Price 6s.

[4] "The Purification of the Water of Swimming Baths." London: H.M. Stationery Office. 1930. Price 1s.

[5] "Milk Consumption and the Growth of School Children." A Report on an Investigation in Lanarkshire Schools. By Gerald Leighton, O.B.E., F.R.S.E., and Peter L. McKinlay, M.D., D.P.H. Pp. 20. Edinburgh: H.M. Stationery Office. 1930. Price 3d.

The Board of Education has issued its Second Interim Report of the Committee on Adenoids and Enlarged Tonsils, which merits the consideration of all medical officers of schools and others responsible for the care of children.[1]

Doctors, teachers and others having to advise regarding schools on the Continent for delicate and other children will find serviceable information in the guide, now in its fourth year, issued by the firm of Mondover, Educational Advisers, of Paris. This directory provides observations and particulars of schools and tutors abroad, and also a select register of a number of private schools in England prepared to receive pupils from abroad.[2]

Messrs. Ed. J. Burrow and Co., Ltd., have recently issued the twentieth edition of their authoritative and widely distributed directory regarding the schools of England, Scotland, and Wales. Doctors and others called to advise parents or guardians in the selection of educational centres should keep this valuable reference book within reach. It is a handsome volume, with articles on the choice, characteristics, and influences of a school, training ships, and specialized schools. The major part of the work is devoted to accounts of the chief schools, and there are many illustrations. There is also a directory arranged in alphabetical order according to locality.[3]

The Eighteenth Annual Report of the official organization for dealing with tuberculosis in Wales is a document of much importance and special interest.[4] It contains full particulars regarding tuberculosis work in all the Welsh counties and in special sanatoria and other institutions. There are several valuable papers by members of the staff and a number of instructive skiagrams.

The official Reports on Atmospheric Pollution contain much valuable data which deserve the serious study of all scientific workers co-operating in researches making for improved conditions of the atmosphere and the prevention of pollution.[5]

Vol. 72 of the series of "Studies from The Rockefeller Institute for Medical Research" is an impressive collection of reprints extending over 590 pages.[6] Among the papers are communications on naso-pharyngeal flora in health and during respiratory disease, chemo-immunological studies, and the cultural and staining reactions of a strain of the tubercle bacillus producing paralysis in guinea-pigs. Vol. 73 contains forty-three communications including important papers

[1] "The Association of Rickets and Dental Disease with Adenoids and Enlarged Tonsils." Pp. 28. London: H.M. Stationery Office. 1931. Price 6d.

[2] "Continental Schools, 1930." Pp. 147, with Map. Paris: Mondover, 12, Rue d'Agnesseau. 1930. Price 20 frs., post free.

[3] "The Schools of England, Wales, and Scotland: With Particulars of Recommended Schools on the Continent of Europe and Tutors' Announcements." Pp. 684, with illustrations. Cheltenham: Ed. J. Burrow and Co., Ltd., Imperial House. 1930. Price 3s. 6d.

[4] The King Edward VII. Welsh National Memorial Association's (The Prevention, Treatment, and Abolition of Tuberculosis) "Eighteenth Annual Report for the Year ended March 31, 1930." Pp. 187, with map and illustrations. Cardiff: Memorial Offices, Westgate Street. 1930.

[5] "The Investigation of Atmospheric Pollution: Reports for the Years ending March 31, 1929 and 1930." From the Department of Scientific and Industrial Research, 16, Old Queen Street, Westminster, S.W. 1. London: H.M. Stationery Office. 1930. Price 3s. 6d. each.

[6] The "Studies from The Rockefeller Institute for Medical Research" are issued direct from the Institute, York Avenue and 66th Street, New York City.

on the bactericidal action of ultra-violet light, the transformation of pneumococcal types, and post-vaccinal encephalitis. Vol. 74 contains an important paper on the reactions of the tissues to the lipoid fractions of the tubercle bacillus.

The council of the movement known as Better Homes in America have issued an illustrated guidebook for Better Homes Campaigns in Cities and Towns.[1] This informing and stimulating booklet deserves the attention of all interested in improved housing.

The "Wellcome" Photographic Handbook is so well known and approved that it is only necessary to remind all our readers who possess a camera that the 1931 handbook fully maintains the high standard of its predecessors. No photographer can afford to be without this pocket companion.[2]

The continental handbook which through many years has borne the name of Bradshaw is now available in a new edition for 1931.[3] This reference book is one which doctors and others having to advise patients and others in regard to European spas and health resorts and travel for purposes of recreation, education and general well-being should keep at hand. Information is given in condensed form respecting all the chief cities of Europe and Mediterranean stations. There is an excellent directory of bathing resorts. There is a good map. The advertisements also provide an instructive section.

The famous firm of James Carter and Co. have issued a handsome illustrated catalogue for 1931.[4] This beautiful and instructive catalogue should be in the hands of all lovers of gardening, and certainly should be available for reference in every sanatorium and open-air school.

"The Medical Annual" for 1931 has just been issued and fully maintains its unique position as an indispensable reference book for medical practitioners desiring to keep up to date.[5] The contributors number twenty-nine. There are excellent summaries dealing with the various forms of tuberculosis. Professor W. H. Wynn deals with Pulmonary Tuberculosis and Mr. A. Tudor Edwards with its Surgical Treatment; Professor John Fraser furnishes an admirable survey of Surgical Tuberculosis; Mr. Geoffrey Jefferson furnishes a short communication on Tuberculosis of the Central Nervous System. The volume contains a helpful list of Sanatoria for Consumption and other forms of Tuberculosis. The Annual is produced in the usual high-class form we expect from its publishers and it is generously illustrated.

[1] "Better Homes in America." Pp. 48. Washington: Better Homes in America Incorporated, 1653, Pennsylvania Avenue. 1930. Price 10 cents.

[2] The "'Wellcome' Photographic Exposure Calculator, Handbook and Diary." London: Burroughs Wellcome and Co. 1931. Price 1s. 6d.

[3] Bradshaw's Continental Handbook for Travellers. "Through Europe," etc. Pp. xxiv+834, with map. London: Henry Blacklock and Co., Ltd., Bradshaw House, Surrey Street, Strand, W.C. 2. 1931. Price 3s. 6d.

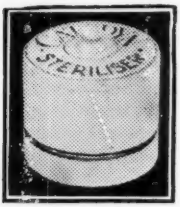
[4] "The Blue Book of Gardening." Pp. 400, with numerous illustrations, plain and in colour. London: James Carter and Co., Raynes Park, S.W. 20. 1931. Price 1s.

[5] "The Medical Annual: A Year Book of Treatment and Practitioner's Index." Edited by Carey F. Coombs, M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. Pp. xcix+604+167. Bristol: John Wright and Sons, Ltd. 1931. Price 20s.

# PREPARATIONS AND APPLIANCES.

## HYGIENIC APPLIANCES AND THERAPEUTIC PREPARATIONS.

CATADYN is a scientific hygienic novelty of great interest which promises to have serviceable applications not only in medical work but in the activities of daily life.[1] For many years it has been known that certain metals show "oligodynamic" activity. Catadyn is the designation given to a new form of silver which is fixed in a non-colloidal form on various types of earthenware carriers. When water comes in contact with the Catadyn surface, minute quantities of silver pass into solution as silver ions, and there, it is claimed, effect the destruction of such pathogenic organisms as *Bacillus coli*. This new process for the sterilizing of drinking water deserves thorough investigation. A variety of Catadyn sterilizing receptacles are now available.




THE CATADYN DENTAL PLATE STERILISER.

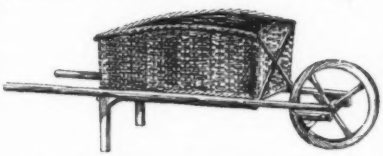
We would direct special attention to the DENTAL PLATE STERILISER. This is a small container made of white glazed Carlton ware with the Catadyn sterilizing elements placed below a perforated plate. The container is filled with water each night, and the dentures placed within undergo thorough bacteriological cleansing. The container may, of course, be used for the sterilizing of other small articles and for the preparation of antiseptic water.

THE GODDARD JUVENILE REST COUCH is now in use in many sanatoria, schools, and institutions where young subjects are being treated and educated and brought up on hygienic lines.[2] It is an excellent resting couch for use indoors or in the open. The frame is of steel, and on sanitary as well as on economic grounds is to be preferred to the wooden form of rest. It is strong, durable, and does not rot, warp, break, or harbour germs and insects. The supporting material is made up of strong canvas, which is wired to the frame, and can easily be washed, carbolized, or otherwise disinfected. Beneath the central part of the rest is a separate supporting canvas; this underslung arrangement prevents sagging and the pulling out of eyelets. The rest stands on folding supports some 9 inches from the ground, thus protecting the occupier from ground draughts and yet causing no risk from falls. The approximate weight is 9 pounds. The couch is available in a series of sizes. An adult size is made, and if required a special wire mattress can be fitted. It should also be noted that the couch can be folded flat, thus providing for convenient storage. (The prices range from 6s. to 12s. each, according to size. Special adult size from 15s. 6d. These prices are wholesale, and for dozen lots.)

[1] Full particulars regarding the various forms of Catadyn Equipment may be obtained from the British Catadyn Company, Ltd., Sentinel House, Southampton Row, W.C. 1.

[2] Particulars regarding the Goddard Juvenile Rest and other forms can be obtained from the makers, Goddard's Patent Hammock Bed Company, 146/8, Borough High Street, S.E. 1.

THE "TORRIDGE" LADY'S WICKER GARDEN WHEELBARROW is ideal not only for sound persons of limited powers, but for many patients who desire to live an open-air life and devote themselves to horticultural activities.[1] It will prove of great service in sanatoria, tuberculosis settlements, open-air schools, and for consumptive and other tuberculous subjects carrying on work in their own gardens. The chief features of the barrow are indicated in the accompanying figure. It is light, strong, and constructed of well-seasoned wicker. The body is 28 ins. by 20 ins., over all 53 ins. A slightly smaller size is now available. There is a free-running wheel which leaves no mark on a lawn. (The prices are 18s. 6d. and 21s. 6d., carriage paid.) Messrs. Blackwell have recently introduced a practical novelty in the form of a Ladies' Gathering Stick Basket which will be of much service in collecting fruit and flowers. (The price is 4s. 6d., carriage paid.)



THE "TORRIDGE" GARDEN WHEELBARROW.

THE APOLLO CHAIR is ideal for the service of patients and all others who for health or pleasure desire to rest and sun themselves in the open air.[2] For the use of those undergoing open-air treatment in sanatoria or elsewhere it is in every way perfect. The chair is made from selected seasoned beechwood, with substantial fittings and strong, fadeless, rot-proof canvas of the best quality. It is ingeniously constructed, so that the individual resting in the chair can, without rising and with no strain, adjust the chair from the sitting to the horizontal. Such a chair as the Apollo will be popular among the strong and sound, as well as being approved by the delicate and sick. It can be used with advantage not only in the open air, but indoors, especially in winter gardens, conservatories, on balconies, and elsewhere. It also should be specially noted that the chair is readily portable, and can be easily folded up for transport and storage. (The price is 42s. each, carriage paid.)

THE APOLLO CHAIR.

MYCOLACTINE is one of the new preparations which come to us from France, and is an admirable agent for dealing with cases of constipation, alimentary toxæmia, and intestinal stasis.[3] The essential constituents of each tablet are bile extract, yeast, and lactic ferments. For tuberculous patients and all delicate subjects Mycolactine is admirable, for it procures speedy effective evacuation of the bowels without griping or any discomfort, and at the same time prevents fermentation of the intestinal contents and the production of auto-intoxication.

[1] The "Torridge" Lady's Wicker Garden Wheelbarrow is manufactured by Blackwell and Son, Braunton, North Devon.

[2] The "Apollo" Chair is manufactured by Taylor Bros. (Sandiacre), Ltd., Midland Foundry, Sandiacre, near Nottingham.

[3] Mycolactine is supplied by The Anglo-French Drug Co. Ltd., 238A, Gray's Inn Road, W.C. 1, and specimens will be sent on application to any medical practitioner.

Mycolactine only needs to be used to be appreciated, and has the great advantage of not creating a purgative habit.

THE "SALVAS" SANITARY TOILET REQUISITE is an ingenious, practical, and effective hygienic equipment, which should have a place in every water-closet and lavatory.[1] The general form and chief features are indicated in the accompanying illustration. "Salvas" provides a valuable means for the maintenance of personal hygiene and ensures a clean toilet. The prophylactic value of this sanitary novelty will be evident. It is not only of service for the healthy and sound, but will be a great advantage and general comfort for the delicate and deranged, and especially for those who are the subject of intestinal troubles and rectal and anal disabilities. For use in private houses, hospitals, sanatoria, open-air schools, and public and private institutions, as well as for employment on board ships, in lavatories on trains and elsewhere "Salvas" meets a real need. This equipment consists of a toilet roll of specially constructed combined papers, which can be used dry or be made moist by passing through a cleverly devised roller-bath containing water in which "Salvas" antiseptic and disinfecting tablets have been dissolved. This is easily arranged for by turning a little knob at either side of the roller-bath, whereby the special paper is impregnated with the cleansing and antiseptic solution, and given the qualities of a neat, clean, effective sponge. The advantage of this will be readily realized. Moreover the "Salvas" provides a ready means whereby a lavatory seat may be rapidly made hygienic before use. On medical, hygienic, and utilitarian grounds "Salvas" is to be strongly recommended; it only requires to be known and used for its advantages to be appreciated. It should be noted that "Salvas" is now available in several models and in accordance with various colour schemes. (Prices range from 7s. 6d. to 42s., and "Salvas" Toilet Roll Refills are supplied at 6s. 6d. per doz.)

THE "SALVAS" SANITARY TOILET REQUISITE.

YAGHOURT, or Bulgarian Lactic Milk, is a preparation containing the *Bacillus bulgaricus* or the *Bacillus acidophilus*, and is a nutrient rich in vitamins, and has also been proved to be of great service in preventing the development of intestinal, putrefactive, and pathogenic organisms.[2] A reliable and particularly pleasing form of Yaghourt is now available in a daily service as "The Blue Pot Yaghourt Bulgarian Lactic Milk." (Price 9d. per pot.) Metchnikoff and many others have recommended Yaghourt as an agent assisting in the preservation of long life, and serviceable in the prevention of intestinal infection and toxic conditions and other disorders. In many cases of tuberculosis affecting children as well as adults, Yaghourt is of undoubted benefit.

[1] The "Salvas" Sanitary Toilet Requisite is manufactured by Robinson and Sons, Ltd., of Chesterfield, and is supplied by "Salvas" Sales Agents, City Chambers, 65a, Fenchurch Street, E.C. 3.

[2] Particulars regarding Yaghourt can be obtained from the Blue Pot Yaghourt Company (A. Furneaux), 48A, Archer Street, Westbourne Grove, W. 11, and a free specimen will be sent on application to any medical adviser quoting this JOURNAL.

# THE OUTLOOK.

## NOTES AND RECORDS.

THE Minister of Health recently stated, in regard to X-ray examination and tuberculosis, that the number of X-ray examinations made in 1929 for every 100 new cases and contacts who were examined in tuberculosis dispensaries in England and Wales was slightly over 25. Definite arrangements for X-ray examination have been made by 122 out of 140 tuberculosis authorities in England and Wales, and by all the Metropolitan borough councils. Other tuberculosis authorities have from time to time provided X-ray examinations for particular cases.

According to the *British Legion Journal*, the French Government have set apart the sum of 40,000,000 francs for the construction of a village settlement for tuberculous ex-service men, the control of this settlement to be in the hands of the National Federation of ex-Service Men.

The Medical Research Council have awarded three Dorothy Temple Cross Research Fellowships for 1930-31 to Drs. A. I. G. McLaughlin, R. J. Matthews, and S. M. Burrows. Dr. McLaughlin has received a Fellowship for the study of methods of diagnosis and treatment at some chosen centre in the United States. Dr. Matthews and Lieutenant Burrows have received Senior Fellowships, and will make special studies of problems of tuberculosis among the native populations in Zanzibar and in the Bahr-el-Ghazal province of the Sudan, under arrangements made by the Council with the respective Governments.

The British Empire Cancer Campaign announces that a prize, consisting of a medal together with an honorarium of £500, will be awarded to the person, or group of persons, submitting the essay embodying the results of original investigations which, in the opinion of the judges appointed by the Grand Council of the British Empire Cancer Campaign, is the best contribution towards "The Biological Effects and Mode of Action of Radiations upon Malignant and Other Cells." Candidates, who may be of either sex, must be British subjects domiciled in the British Empire. All essays must be delivered at the offices of the British Empire Cancer Campaign not later than December 31, 1933. A copy of the complete rules and regulations relating to the prize can be obtained on application to the Secretary, The British Empire Cancer Campaign, 12, Grosvenor Crescent, Hyde Park Corner, London, S.W. 1.

The Wellcome Foundation, Ltd., is about to erect a new medical and chemical research building at the corner of Gordon Street and Euston Road on the site now partly occupied by their Bureau of Scientific Research. Mr. Septimus Warwick, F.R.I.B.A., is the architect.

The American National Tuberculosis Association is issuing every month a valuable leaflet, "Tuberculosis Abstracts: A Review for Physicians," giving in succinct form up-to-date information likely to be helpful to medical advisers dealing with tuberculous cases. The

April number is devoted to the consideration of "Tuberculosis among High School Students."

*The Sight-Saving Review* is a new quarterly published by the National Society for the Prevention of Blindness, Inc., 450, Seventh Avenue, New York City. (Annual subscription, $3.00.)

Medical advisers and all interested in health and holiday resorts should secure a copy of "Holiday Haunts" issued by the Great Western Railway, edited by Maxwell Fraser (price 6d.). This monumental volume, consisting of nearly a thousand pages, a beautiful collection of illustrations, and particulars of hotels and other accommodation, is a splendid directory to charming centres on the G.W.R. system.

The Second International Medical Post-Graduate Courses, under the auspices of the Tomarkin Foundation, will be held at Locarno on April 14-28. Many eminent representatives from various countries will deliver lectures, and there will be attractive excursions.

The Standing Conference of Metropolitan Borough Tuberculosis Care Committees has arranged an exhibition and sale of handicrafts by tuberculous patients, to be held on April 22 and 23, at the Carpenters' Hall, Throgmorton Avenue, E.C. The exhibition will be opened on April 22, at 3 p.m., by the Lord Mayor, accompanied by the Sheriffs.

The Annual Congress of the Royal Institute of Public Health is to be held at Frankfort-on-Main, May 19 to 24. A special section is devoted to Tuberculosis, the President of which is Mr. David Davies, President of King Edward VII. Welsh National Memorial Association. A programme may be obtained on application to the Hon. Secretaries, 37, Russell Square, W.C. 1.

In connection with the Section of Disease in Children of the Royal Society of Medicine, on June 9, at 8.30 p.m., Professor A. Calmette of Paris will read a paper on B.C.G. immunisation of infants.

The National Association for the Prevention of Tuberculosis, the headquarters of which are at Tavistock House North, Tavistock Square, W.C. 1, announce that the Seventeenth Annual Conference will be held on June 25-27, 1931, at Margate, and that the subject for discussion will be "The Protection of the Child from Tuberculosis." The Conference is open to all persons interested in tuberculosis on payment of the fee of £1 1s., either as delegates or as private members of the Conference. The fee includes a copy of the Report of Proceedings. Further particulars may be obtained on application to the Secretary, Miss Freda Stickland.

Tuberculosis subjects will be considered in the Public Health Section at the Eastbourne meeting of the British Medical Association, July 22-24.

The Second International Congress for Light will be held in Copenhagen, August 15-18, 1932, under the presidency of Dr. A. Reyn. The purpose is to study biological and biophysical problems connected with light and light treatment. Particulars may be obtained on application to Dr. A. Kissmeyer, Finsens Lysinstitut, Copenhagen.